DENON

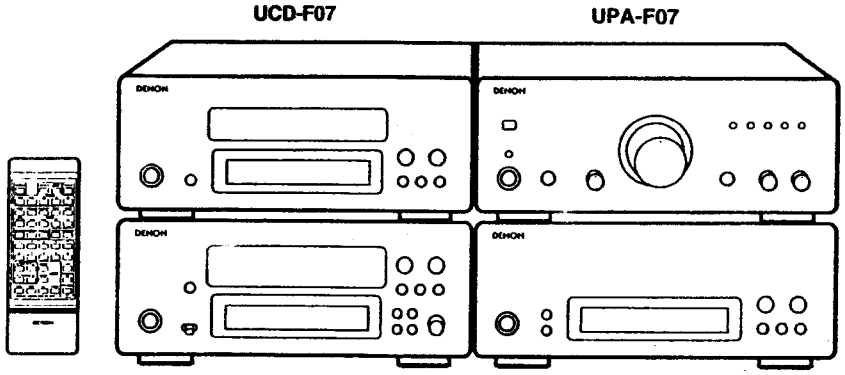
Hi-Fi Personal Component System

SERVICE MANUAL

MODEL D-F07

PERSONAL COMPONENT SYSTEM

COMPACT disc DIGITAL AUDIO



RC-807: Europe model
RC-806: Asia model

Unit No. UPA-F07 (Pre-Main Amplifier)
Unit No. UTU-F07 (AM, FM Stereo Tuner)
Unit No. UCD-F07 (Compact Disc Player)
Unit No. UDR-F07 (Cassette Tape Deck)

- The D-F07 Personal Component System consists of the following:

AM, FM Stereo Tuner Unit	UTU-F07
Pre-Main Amplifier Unit	UPA-F07
Compact Disc Player Unit	UCD-F07
Cassette Tape Deck Unit	UDR-F07
Remote Control Unit	RC-807: Europe model, RC-806: Asia model
Speaker Unit	USC-F07 (Option for Asia model)

- Some illustrations using in this service manual are slightly different from the actual set.
- The tuner section of Asia model is not corresponded with RDS (Radio Data System).

NIPPON COLUMBIA CO., LTD

GENERAL SECTION

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SPECIFICATIONS

■Pre-main amplifier (UPA-F07)

Rated output power:	45 W + 45 W (4Ω / ohms, DIN) Europe model, 55 W + 55 W (6Ω / ohms, EIAJ) Asia model
Low frequency adjustment range:	100 Hz ±8 dB
High frequency adjustment range:	10 kHz ±8 dB
Audio input / output jacks:	CD input jacks, tape input/output jacks, tuner input jacks, MD/AUX input/output jacks, 6.3 mm headphones jack and phono input jacks
Power supply:	AC 230 V, 50 Hz Europe model, AC 115 / 230 V, 50 / 60 Hz Asia model
Power consumption:	120W
Maximum external dimensions:	270 (W) × 112 (H) × 327 (D) mm (10-5/8" × 4-13/32" × 12-7/8") (including feet, controls and terminals)
Weight:	5.1 kg (11 lbs. 4 oz)

■Tuner (UTU-F07)

Reception frequency band:	FM: 87.50 MHZ – 108.00 MHZ AM: 522 kHz – 1611 kHz
Reception sensitivity:	FM: 1.5 μ/75 Ω/ohms AM: 20 μV
FM stereo separation:	35 dB (1 kHz)
Power supply:	AC 230 V, 50 Hz Europe model, AC 115 / 230 V, 50 / 60 Hz Asia model
Power consumption:	10 W
Maximum external dimensions:	270 (W) × 112 (H) × 294 (D) mm (10-5/8" × 4-13/32" × 11-37/64") (including feet, controls and terminals)
Weight:	2.7 kg (5 lbs. 15 oz)

■CD player (UCD-F07)

Wow & flutter:	Below measurable limits (±0.001% W. peak)
Sampling frequency:	44.1 kHz
Optical source:	Semiconductor
Power supply:	AC 230 V, 50 Hz Europe model, AC 115 / 230 V, 50 / 60 Hz Asia model
Power consumption:	10 W
Maximum external dimensions:	270 (W) × 112 (H) × 294 (D) mm (10-5/8" × 4-13/32" × 11-37/64") (including feet, controls and terminals)
Weight:	3.1 kg (6 lbs. 13 oz)

■Cassette deck (UDR-F07)

Type:	Horizontal 4-track 2-channel stereo auto reverse cassette deck
Heads:	1 hard permalloy recording/playback head 1 double-gap ferrite erasing head
Tape speed:	4.75 cm/s
Included circuits:	Dolby B and C NR, Dolby HX Pro
Usable tapes:	Normal, chrome and metal
Power supply:	AC 230 V, 50 Hz Europe model, AC 115 / 230 V, 50 / 60 Hz Asia model
Power consumption:	14 W
Maximum external dimensions:	270 (W) × 112 (H) × 302 (D) mm (10-5/8" × 4-13/32" × 11-29/32") (including feet, controls and terminals)
Weight:	3.7 kg (8 lbs. 3 oz)

■Remote control unit (RC-807): Europe model, (RC-806): Asia model

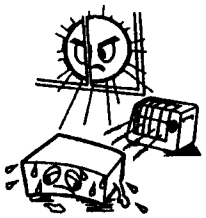
Remote control system:	Infrared pulse
Number of buttons:	47: Europe model, 43: Asia model
Power supply:	Two DC 1.5V R6P/AA batteries
Maximum external dimensions:	64 (W) × 176 (H) × 18 (D) mm (2-1/2" × 6-15/16" × 23/32")
Weight:	130 g (including batteries) (Approx. 4.6 oz)

* Maximum dimensions include controls, jacks, and covers.
  (W) = width, (H) = height, (D) = depth
- For improvement purposes, specifications and functions are subject to change without advanced notice.

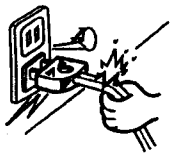
■Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

■"DOLBY", the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

NOTE ON USE / HINWEISE ZUM GEBRAUCH / OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO

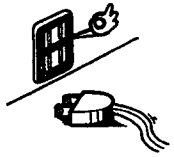


- Avoid high temperatures
  Allow for sufficient heat dispersion when installed on a rack.
- Vermeiden Sie hohe Temperaturen
  Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.
- Eviter des températures élevées
  Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.
- Evitate di esporre l'unità a temperature alte.
  Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.

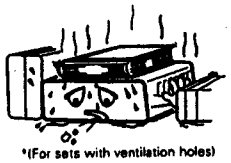


- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Gehen Sie vorsichtig mit dem Netzkabel um.
  Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.
- Manipuler le cordon d'alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.
- Manneggiate il filo di alimentazione con cura.
  Agite per la spina quando scollegate il cavo dalla presa.

- Keep the set free from moisture, water, and dust.
- Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.
- Protéger l'appareil contre l'humidité, l'eau et la poussière.
- Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.

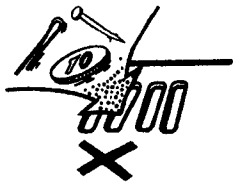


- Unplug the power cord when not using the set for long periods of time.
- Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.
- Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.
- Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.

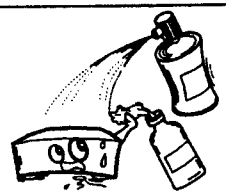


*(For sets with ventilation holes)

- Do not obstruct the ventilation holes.
- Die Belüftungsöffnungen dürfen nicht verdeckt werden.
- Ne pas obstruer les trous d'aération.
- Non coprite i fori di ventilazione.



- Do not let foreign objects in the set.
- Keine fremden Gegenstände in das Gerät kommen lassen.
- Ne pas laisser des objets étrangers dans l'appareil.
- E' importante che nessun oggetto è inserito all'interno dell'unità.



- Do not let insecticides, benzene, and thinner come in contact with the set.
- Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.
- Assicuratevvi che l'unità non venga in contatto con insetticidi, benzolo o solventi.

- Never disassemble or modify the set in any way.
- Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.
- Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.
- Non smontate mai, nè modificate l'unità in nessun modo.

CAUTION / VORSICHT / ATTENTION / AVVISO

- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.
- Si de la fumée sort de la chaîne ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocate immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

"SERIAL NO. _____
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE CABINET FOR FUTURE REFERENCE"

SAFETY IMPORTANT

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

- **DECLARATION OF CONFORMITY**
  We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:
  EN55013, EN55020, EN60555-2 and EN60555-3.

- **ÜBEREINSTIMMUNGSERKLÄRUNG**
  Wir erklären unter unserer Verantwortung, daß dieses Produkt, auf das sich diese Erklärung bezieht, den folgenden Standards entspricht:
  EN55013, EN55020, EN60555-2 und EN60555-3.

- **DECLARATION DE CONFORMITE**
  Nous déclarons sous notre seule responsabilité que l'appareil, auquel se réfère cette déclaration, est conforme aux standards suivants:
  EN55013, EN55020, EN60555-2 et EN60555-3.

- **DICHIARAZIONE DI CONFORMITÀ**
  Dichiariamo con piena responsabilità che questo prodotto, al quale la nostra dichiarazione si riferisce, è conforme alle seguenti normative:.
  EN55013, EN55020, EN60555-2 e EN60555-3.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VAROITUSI LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING- OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

"CLASS 1
LASER PRODUCT"

This operating instruction from page 4 to page 26 is only for Europe model.

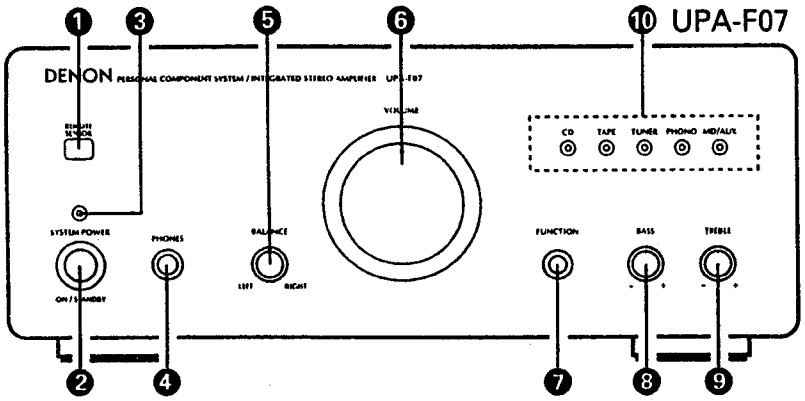
FRONT PANEL / FRONTPLATTE / PANNEAU AVANT / PANNELLO ANTERIORE

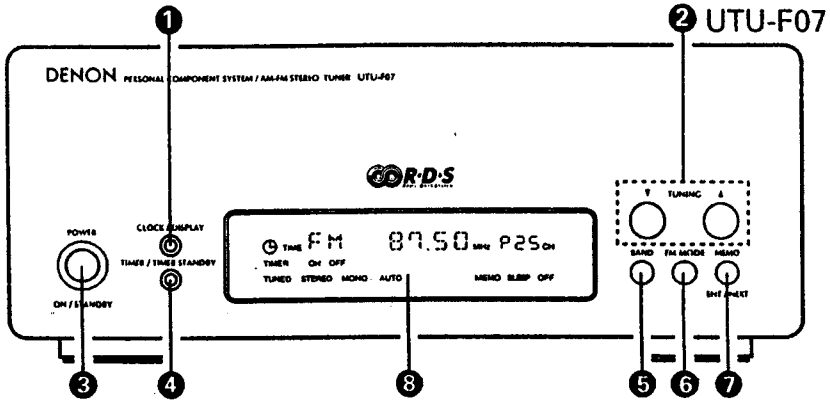
PRE-MAIN AMPLIFIER
VORVERSTÄRKER
AMPLIFICATEUR-PRÉAMPLIFICATEUR
PREAMPLIFICATORE PRINCIPALE

See ENGLISH Page 6
Sehen Sie DEUTSCH Seite 30
Voir FRANÇAIS Page 54
Fate riferimento alla sezione ITALIANO alla pagina 78

STEREO TUNER
STEREO EMPFÄNGER
TUNER STÉRÉO
SINTONIZZATORE STEREO

See ENGLISH Page 6
Sehen Sie DEUTSCH Seite 30
Voir FRANÇAIS Page 54
Fate riferimento alla sezione ITALIANO alla pagina 78



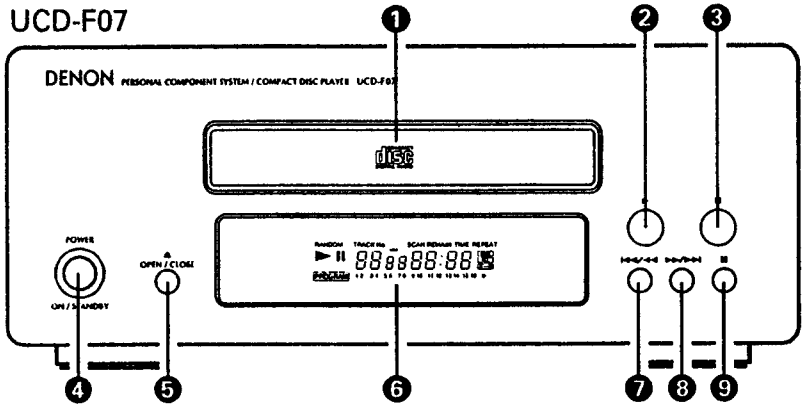


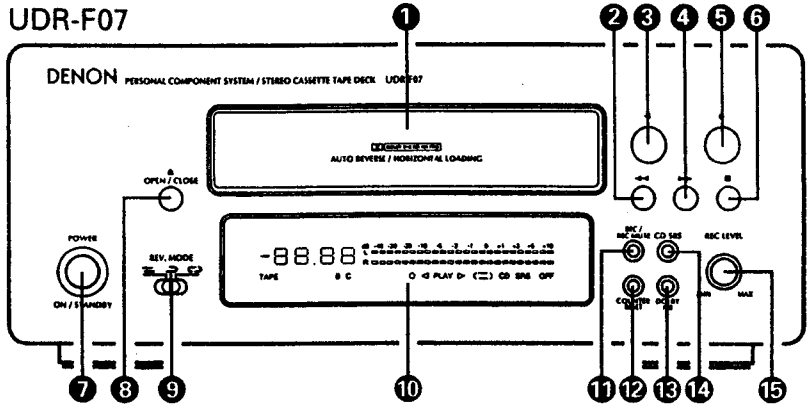
CD PLAYER
CD-SPIELER
LECTEUR CD
DISPLAY DELLA PIASTRA A CASSETTE

See ENGLISH Page 7
Sehen Sie DEUTSCH Seite 31
Voir FRANÇAIS Page 55
Fate riferimento alla sezione ITALIANO alla pagina 79

CASSETTE DECK
CASSETTENDECK
PLATINE CASSETTE
PIASTRA A CASSETTE

See ENGLISH Page 8
Sehen Sie DEUTSCH Seite 32
Voir FRANÇAIS Page 56
Fate riferimento alla sezione ITALIANO alla pagina 80





- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaine réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.

CONTENTS

Check that the following parts are included in the package aside from the main unit:

- **UPA-F07 (Pre-main amplifier unit)**
  - Remote control unit (RC-807) 1
  - R6P/AA batteries 2
  - Operating instructions 1
- **UTU-F07 (AM / FM stereo tuner)**
  - FM antenna 1
  - AM loop antenna 1
  - System connector cable 1
  - RCA pin-plug cord 1
- **UCD-F07 (compact disc player)**
  - System connector cable 1
  - RCA pin-plug cord 1
- **UDR-F07 (cassette tape deck)**
  - System connector cable 1
  - RCA pin-plug cord 2

1 MAIN FEATURES

- **RDS compatible**
  Compatible with various RDS services, including program service name (PS), program type identification (PTY), traffic program identification (TP) and clock time (CT).
- **Quality power for high quality sound**
  45W + 45W (4 Ω / ohms, DIN) high quality amplifier and terminals for large speakers.
- **High sound quality, multi-function CD player**
  Edit function for automatically dividing the tracks on a CD for recording onto sides A and B of a tape.
- **Cassette deck with Dolby B, C and HX-Pro circuits**
  For playback and recording of high quality sound.
- **Two types of timers**
  Two timer settings can be made — everyday and sleep.
- **Easy-to-use remote control unit**
- **Auto on function**
  The power turns on automatically and playback begins when the play button on the CD player or the cassette deck or the tuner preset up / down buttons on the remote control unit are pressed.

2 BEFORE USING

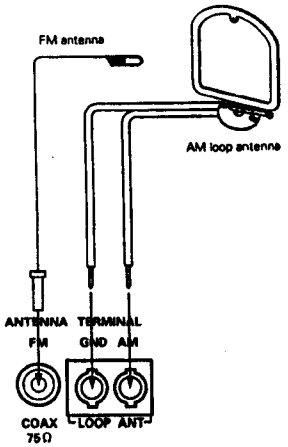
Read the following before using the system.

- **Before turning on the power**
  Check again that all connections are correct and that there are no problems with the connection cords. Be sure to unplug the power cord before connecting or disconnecting the connection cords.
- Humming may be produced if this system is set near a TV or other audio equipment. If this happens, try changing the position of the equipment or the connection cords.
- **Moving the system**
  Be sure to remove CDs before moving the system. If a CD is left in the CD player, it may be scratched.
  To prevent short-circuits or damage to the connection cords, always unplug the power cord and disconnect all connection cords to other audio equipment.
- **Condensation (dew)**
  Condensation (water droplets) may be produced on internal optical lenses or discs in the following cases:
  - Directly after a heater is turned on.
  - When the system is in a steamy or humid room.
  - When the system is moved abruptly from a cold place (room) to a warm room.
- **Should condensation occur:**
  The signals on the disc cannot be read and the system will not function properly. Remove the disc then let the system set with the power on. The condensation will evaporate in one hour or less, at which time the system will function normally.
- Note that some of the illustrations used for explanations in this manual may differ from the actual system.

3 CONNECTING THE INCLUDED ANTENNAS

Installing the FM indoor antenna

Tune in an FM station (see Page 10), set the antenna in a position in which distortion and noise is minimum, then fasten the tip of the antenna in this position using tape or a pin.



Connecting an FM outdoor antenna

If good reception cannot be achieved with the included FM antenna, use an FM outdoor antenna. Connect an F-shaped connector to the coaxial cable and connect the antenna to the FM COAX (75 Ω) terminal.

Selecting a place for the FM outdoor antenna

- Set the antenna so that it is pointing towards the broadcast station's transmitting antenna. Behind buildings or mountains, set the antenna in the position at which reception is best, and also try changing the direction of the antenna.
- Do not install the antenna under power lines.
  Doing so is extremely dangerous, as the power line could touch the antenna.
- Install the antenna away from roads or train tracks to avoid noise from cars or trains.
- Do not install the antenna too high, as it may be hit by lightning.

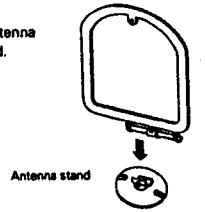
Installing the AM loop antenna

Tune in an AM station (see Page 10) and set the antenna in a position as far from the system as possible in which distortion and noise is minimum. In some cases it is best to invert the polarities. AM broadcasts cannot be received well if the loop antenna is not connected or if it is set close to metal objects.

Assembling the AM loop antenna

Assemble the included AM loop antenna as shown in the diagram.

① Remove the clamp.
② Insert the AM loop antenna into the antenna stand.



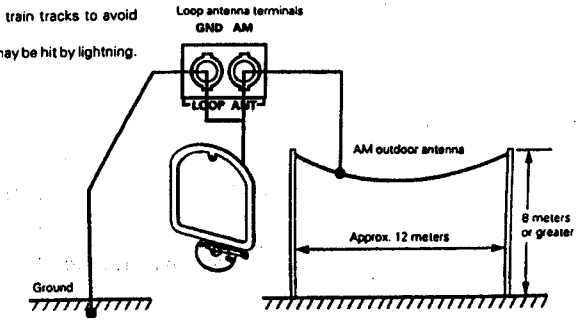
Connecting the AM loop antenna

Connect the included AM loop antenna to the antenna terminals as shown in the diagram.

① Loosen the terminal knobs. ② Insert the antenna wire. ③ Tighten the terminal knobs.

Installing an AM outdoor antenna

Connect the signal wire from the AM outdoor antenna to the antenna terminal. Be sure to ground the antenna and connect the ground wire to the GND terminal. Also be sure to connect the included AM loop antenna.



[4] CONNECTIONS

NOTE:

This system includes digital circuitry which may cause interference such as color blotching or changes in the color on TVs. If this happens, move the system and the TV as far apart as possible.

Use a record player with an MM cartridge.

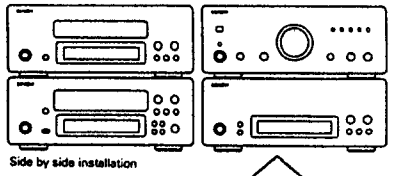
- Disconnect the ground cord if humming or noise is produced when it is connected.

Connecting the speaker systems

Connect the speaker system for the left channel (the left side as seen from the front) to the "L" terminals, the speaker system for the right channel to the "R" terminals. Be sure to use speaker systems with an impedance of 4 Ω / ohms or greater.

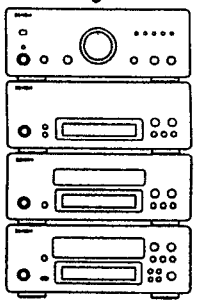
CAUTION:

Whenever the power switch is in the STANDBY position, the unit is still connected on AC line voltage. Please be sure to unplug the cord when you leave home for, say, a vacation.

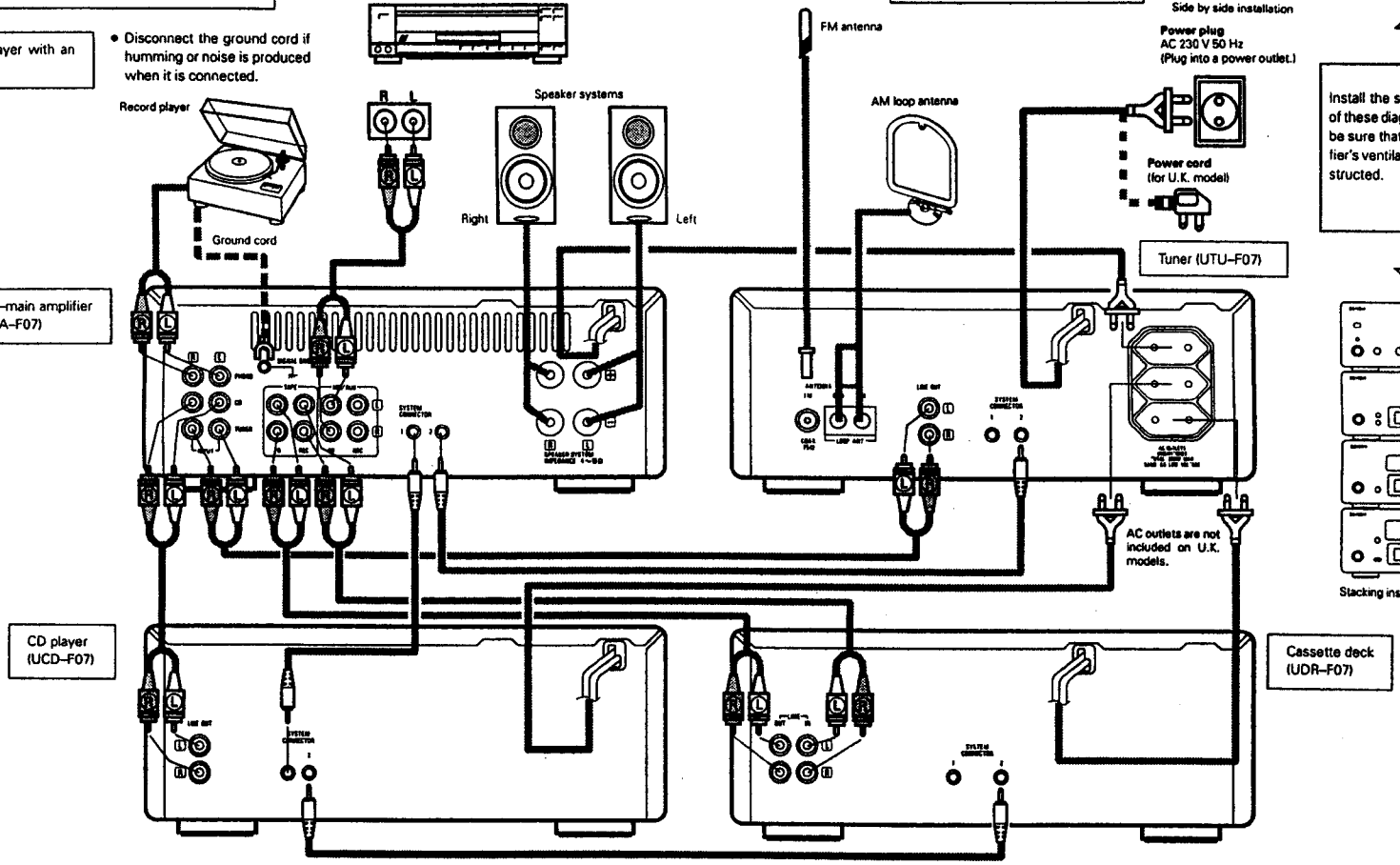


Side by side installation

Install the sets as shown in one of these diagrams. In either case, be sure that the pre-main amplifier's ventilation holes are not obstructed.



Stacking installation



System operations

Such system operations as the timer and the auto on functions, as well as remote control operations cannot be performed unless all the RCA pin-plug cords and system connector cords are connected between the units, so be sure to make all the connections properly as shown in the diagram. Also, disconnecting system connectors while the system is operating may result in malfunction. Be sure to turn unplug the power cord before changing connections.

NOTES:

- Do not plug the power cord into the power outlet until all connections are completed. Be sure to interconnect the channels (L to L (white) and R to R (red)) properly, as shown on the diagram.
- Insert the plugs securely. Incomplete connections may result in noise.
- Be sure to connect the speaker cords between the speaker terminals and the speaker systems with the same polarities (+ to +, − to −). If the polarities are switched, the sound at the center will be weak, the position of the different instruments will be unclear, and the stereo effect will be lost.
- After unplugging the power cord, wait about 5 seconds before plugging it back in.
- Note that setting the connection cords (pin-plug cords) next to the power cords may result in humming or other noise.

5 PART NAMES, FUNCTIONS AND DISPLAYS

PRE-MAIN AMPLIFIER

❶ REMOTE SENSOR
When operating the remote control unit, point it at this sensor.

❷ SYSTEM POWER switch
(This turns the power for the entire system on and off.)
Press this once to turn the power on, then press again to set the power to the standby mode.

❸ Power indicator
This lights when the power cord is plugged into a power outlet, and flashes for 5 seconds after the system power is turned on.

❹ PHONES (headphones jack)
Plug the headphones into this jack.
No sound is produced from the speakers when headphones are plugged in.

❺ BALANCE control
Use this to adjust the balance of the volume between the left and right channels. When set at the center position, the volume is the same for the left and right channels.

❻ VOLUME control
Use this to adjust the overall volume.
The volume increases when the control is turned clockwise (↷) and decreases when it is turned counterclockwise (↶).

❼ FUNCTION (input) selector button
Use this to select the input (function).
The input changes in the following order each time this button is pressed: CD, TAPE, TUNER, PHONO, MD/AUX. (The function changes automatically when the system's CD player or cassette deck is played or when a preset channel is recalled on the tuner.)

❽ BASS control
Use this to adjust the volume of the low frequencies.

❾ TREBLE control
Use this to adjust the volume of the high frequencies.

❿ Function indicators
These light to indicate the currently selected function.

TUNER

❶ CLOCK / DISPLAY selector button
This button is used to switch the display between the reception frequency and the clo' ..

❷ TUNING UP (▲) and DOWN (▼) buttons
These buttons are used to select AM and FM stations and to set the clock and timer.

❸ POWER switch
Press this button once to turn the tuner's power on, then press again to set the tuner to the standby mode. In the standby mode, "OFF" appears on the display.

❹ TIMER / TIMER STANDBY button
Press this when setting the timer and to turn the timer on so that it operates at the set times.
When the button is pressed after the timer has been set, the timer standby mark (" ◷ ") appears on the display.
Press again to turn the mark off.
The timer will not operate when the " ◷ " mark is off.

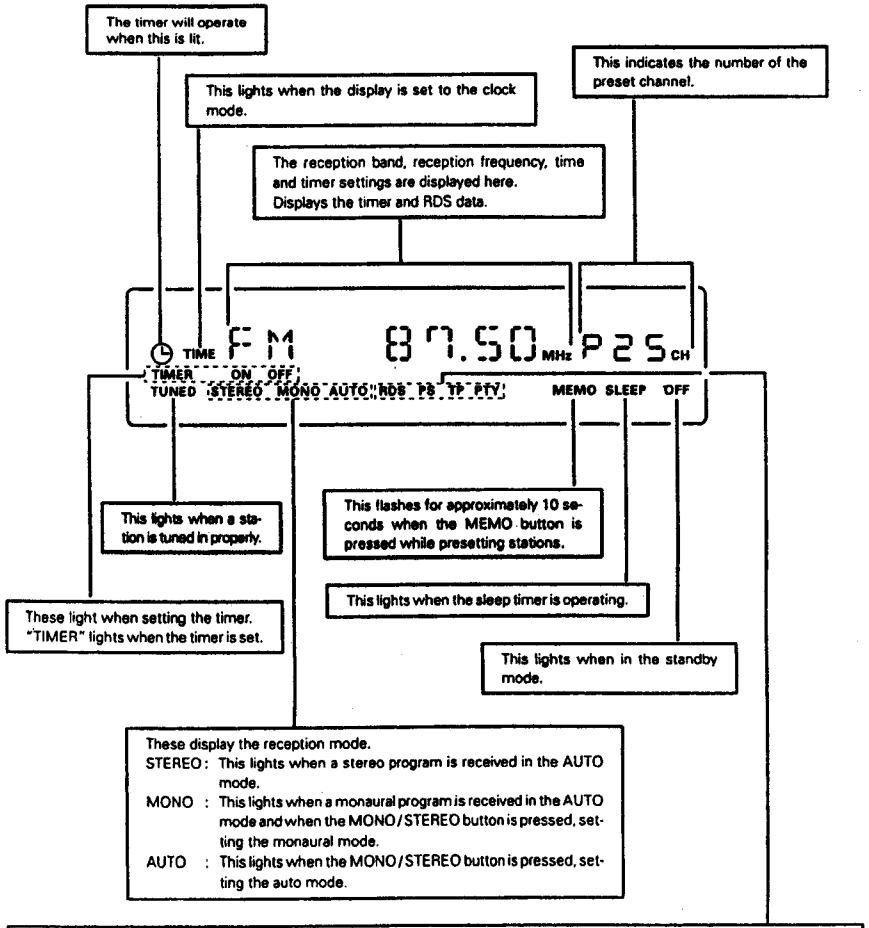
❺ BAND (AM / FM) selector button
The band switches between AM and FM each time this button is pressed.

❻ FM MODE selector button
AUTO mode:
Use this mode to receive programs in stereo.
The sound and the indicators on the display automatically switch between monaural ("MONO") and stereo ("STEREO") according to whether the program is being broadcast in monaural or stereo.
MONO mode:
Use this mode to receive programs in monaural, regardless of whether they are being broadcast in monaural or stereo.
Set this mode if there is much noise or if the signals are weak when receiving stereo programs (when "AUTO" is lit).

❼ MEMO ENT / NEXT button
This button is used to preset AM and FM stations and when setting the timer.

❽ Display

TUNER DISPLAY



NOTE:
• The timer standby mark (" ◷ ") does not light if the current time and the timer have not been set.

CD PLAYER

❶ **Disc tray**
Load discs here.

❷ **▶ (play) button**
Press this button to start playing the disc.
Even when the disc tray is open, the disc tray closes and playback begins when this button is pressed.
When pressed in the standby mode, the power automatically turns on and playback begins. (Auto on function)

❸ **■ (stop) button**
Press this button to stop playback.

❹ **POWER switch**
Press this once to turn the CD player's power on, then press again to set the CD player to the standby mode. In the standby mode, "OFF" appears on the display.

❺ **▲ OPEN / CLOSE button**
Press this to open and close the disc tray.
When pressed once, the disc tray opens out, and when pressed again, the disc tray closes. If a disc is loaded, the total number of tracks and total playing time of the disc are displayed several seconds after the disc tray is closed.
When pressed in the standby mode, the CD player's power turns on.

❻ **Display**

❼ **⏮ / ◀◀**
(automatic / manual search reverse) button
Use this to move to the beginning of a specific track.
When pressed during playback or in the pause mode, the pickup moves backward a number of tracks equal to the number of times the button is pressed.

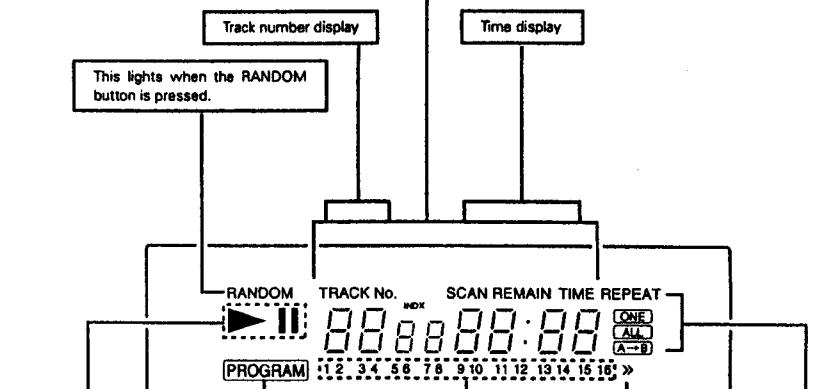
❽ **▶▶ / ⏭**
(automatic / manual search forward) button
Use this to move to the beginning of a specific track.
When pressed during playback or in the pause mode, the pickup moves forward a number of tracks equal to the number of times the button is pressed.
- The automatic search mode is set if the ❼ or ❽ button is released within 0.5 seconds, and the manual search mode is set if the button is held for over 0.5 seconds.

❾ **II (pause) button**
Press this button to stop playback temporarily.
Press the play button to cancel the pause mode and resume playback.

CD PLAYER DISPLAY

The following is displayed on the track number display:
- When the disc's data cannot be read properly 00
- In the stop mode ..... Total number of tracks
- In the play and program modes ..... Track number

The following is displayed on the time display:
- When the disc's data cannot be read ..... d ISC
- In the stop mode ..... Total playing time
- In the play and pause modes ..... Elapsed time for current track
- In the program mode ..... Elapsed time of programmed tracks
- When the outermost section of the disc is reached during the manual search operation ..... End



Music calendar
The numbers of the tracks on the disc are displayed here (up to track number 16). The number for the corresponding track turns off after that track is played.
During programmed playback, the numbers of the programmed tracks are displayed (up to track number 16).
All the numbers light if the disc's data cannot be read properly.

This changes as follows each time the REPEAT button is pressed:
1st press : REPEAT [ONE] (single-track repeat) is displayed and the number of the track to be repeated on the music calendar lights.
2nd press : REPEAT [ALL] (all-track repeat) is displayed.
3rd press : REPEAT [A→] is displayed.
4th press : REPEAT [A→B] is displayed.
5th press : Nothing is displayed.
(Only REPEAT [ONE] and REPEAT [ALL] are displayed in the stop mode.)

CASSETTE DECK

❶ **Cassette tray**
The cassette tray opens out when the OPEN/CLOSE button is pressed. Load the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again. For details, refer to Page 16.

❷ **◀◀ (rewind) button**
Press this button to rewind the top side of the tape. (The bottom side of the tape is fast-forwarded.) Also use this button to search for the beginning of the current selection when playing in the forward (▶) direction, or to search for the beginning of the following selection when playing in the reverse (◀) direction.

❸ **◀ (reverse play) button**
Press this button to play the bottom side of the tape. If this button is pressed in the standby mode, the power of the cassette deck and pre-main amplifier automatically turns on and playback begins. (AUTO ON function)

❹ **▶▶ (fast-forward) button**
Press this button to fast-forward the top side of the tape. (The bottom side of the tape is rewound.) Also use this button to search for the beginning of the following selection when playing in the forward (▶) direction, or to search for the beginning of the current selection when playing in the reverse (◀) direction.

❺ **▶ (forward play) button**
Press this button to play the top side of the tape. If this button is pressed in the standby mode, the power of the cassette deck and pre-main amplifier automatically turns on and playback begins. (AUTO ON function)

❻ **■ (stop) button**
Press this button while the tape is moving to stop the tape.

❼ **POWER switch**
Press this once to turn the cassette deck's power on, then press again to set the cassette deck to the standby mode. In the standby mode, "OFF" appears on the display.

❽ **▲ OPEN/CLOSE button**
Press this to open and close the cassette tray.
When pressed in the standby mode, the cassette deck's power turns on.

❾ **REV. MODE selector switch**
Use this to select the direction of tape travel.
For details refer to Page 17.

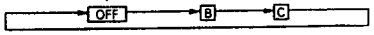
❿ **Display**

⓫ **REC/REC MUTE button**
This button is used when recording and when creating blank spaces between selections. If only the REC/REC MUTE button is pressed, the recording pause mode is set.
Press the button again while in the recording pause mode to set the recording mute mode for approximately 5 seconds, after which the mode returns to the recording pause mode. If the ▶ or ◀ is pressed in the recording pause mode, recording starts on the side of the tape corresponding to that button.
The recording pause mode is set when this button is pressed for less than 0.5 seconds while in the recording mode. If it is pressed for over 0.5 seconds while in the recording mode, the recording mute mode is set for approximately 5 seconds, after which the recording pause mode is once again set. Press the ■ (stop) button to cancel the recording pause mode.

NOTE:
- If the play button on the CD player is pressed during the recording pause mode, recording of the CD begins automatically.

⓬ **COUNTER RESET button**
Press this button to reset the tape counter to " 0000 ".

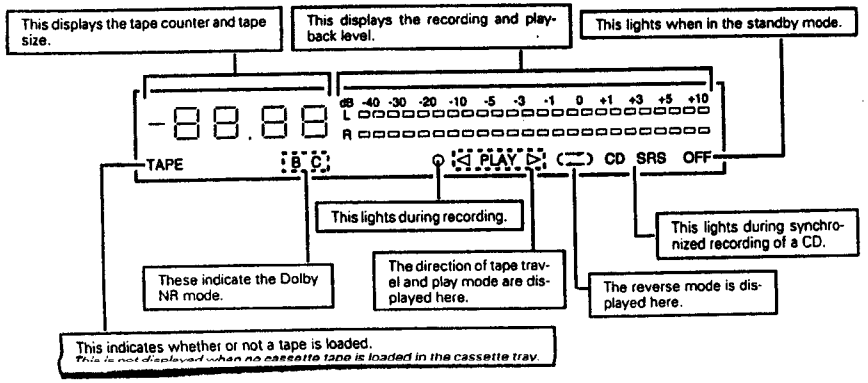
⓭ **DOLBY NR mode selector button**
Use this to select the Dolby NR mode (OFF, B or C). When playing a tape, set the Dolby NR mode to the same mode as when the tape was recorded



⓮ **CD-SRS (Synchronized Recording System) button**
Use this button for synchronized recording of CDs.
For details, refer to Page 19.

⓯ **REC LEVEL control**
Use this to set the recording level.
For details, refer to Page 19.

CASSETTE DECK DISPLAY



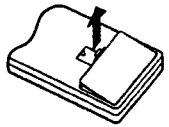
6 REMOTE CONTROL UNIT

The D-F07 comes with a system remote control unit (RC-807).

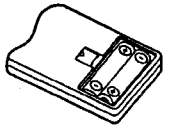
Inserting the batteries

NOTES:
- Use R6P (AA) batteries in this remote control unit.
- Replace the batteries with new ones approximately once each year, though this depends on how frequently the remote control unit is used.
- Replace the batteries with new ones earlier if the remote control unit does not operate even from a short distance.
- Insert the batteries in the proper + and − direction, following the marks in the battery compartment.
- Remove the batteries when not using the remote control unit for extended periods of time.
- To avoid damage and leakage:
  - Do not use a new battery with an old one.
  - Do not use two different types of batteries.
  - Do not short-circuit, take apart, heat or dispose of batteries in flames.
- If the batteries should leak, carefully wipe the fluid out of the battery compartment, then insert new batteries.

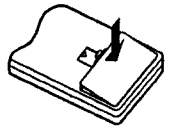
① Open the battery compartment cover on the back of the remote control unit.
Press the knob and open the cover in the direction of the arrow.



② Insert the two R6P (AA) batteries, following the + and − marks in the battery compartment.

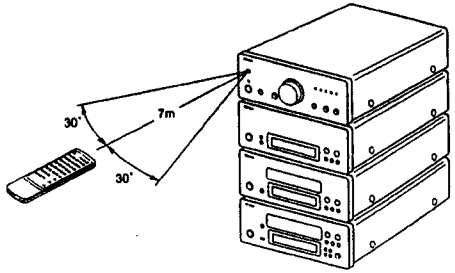


③ Close the cover of the battery compartment.



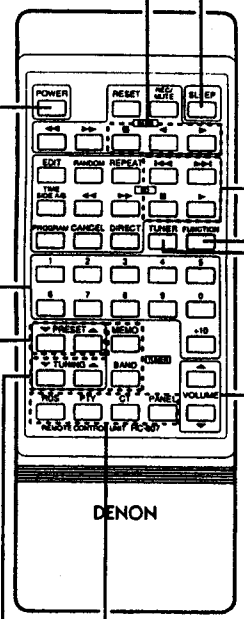
Using the Remote Control Unit

Cautions on Use
- The remote control unit may not operate if the remote sensor is exposed to direct sunlight or the strong light from a lighting fixture, or if there is an obstacle between the remote control unit and the remote sensor.
- Do not press buttons on the remote control unit and on the set at the same time. Doing so could result in malfunction.
- If the remote control unit is pointed away from the remote sensor during continuous operations (such as when turning the volume up or down), the operation will stop. If this happens, point the remote control unit at the remote sensor and press the button again.



- The remote sensor is located on the pre-main amplifier. Point the remote control unit at the remote sensor as shown on the diagram when operating it.
The remote control unit will operate from a direct distance of approximately 7 meters, but this distance will be shortened if obstacles are present or if operated at an angle.
(The remote control unit will operate at an angle of up to 30° in either direction.)

Remote Control Unit Part Names and Functions



POWER switch

Use this switch to turn on the power of the entire system or set the power to the standby mode.

Number buttons

Press these buttons after pressing the TUNER button to recall preset stations.
When playing a CD, press these buttons after pressing the DIRECT or PROGRAM button to specify the desired track.

PRESET buttons

Use these buttons to recall preset stations on the tuner.

BAND (AM / FM) selector button
TUNING buttons
MEMO button

Cassette deck operation buttons

■ (stop) button
Press this button to stop the tape.

▶ (forward play) button
Press this to start playback or recording in the forward direction.

◀ (reverse play) button
Press this to start playback or recording in the reverse direction.

SLEEP button

Press this button to set the sleep timer.

CD operation buttons

■ (stop) button
Press this button to stop playback.

▶ (play) button
Press this button to start playback.

|◀◀ and ▶▶| (automatic search buttons)
Use these buttons to search for the beginning of the desired track.

FUNCTION selector button

Press this button to switch the input (function).
The input changes in the following order each time this button is pressed: CD, TAPE, TUNER, PHONO, MD/AUX.

TUNER button

Press this button to recall preset stations from the remote control unit using the number buttons.

VOLUME buttons

Use these to adjust the volume.
The volume increases when the ▲ button is pressed and decreases when the ▼ button is pressed.

RDS button
Use this button to automatically tune to stations using the radio data system.
RDS → PTY → TP

PTY button
Press this button after selecting "PTY" with the RDS button to select one of the 15 program types.

CT button
Use this to correct the time of the clock on the UTU-F07. Press this button when the time service of an RDS station is being properly received.
"CT" and "TIME" are displayed for 2 seconds and the UTU-F07's clock is corrected. "NO CT" is displayed if the RDS station does not offer a time service and when the broadcast is not being received properly.

PANEL button
Press this button when receiving RDS stations to select the frequency, PS or PTY display.
Note that this button will not function if the reception is poor.

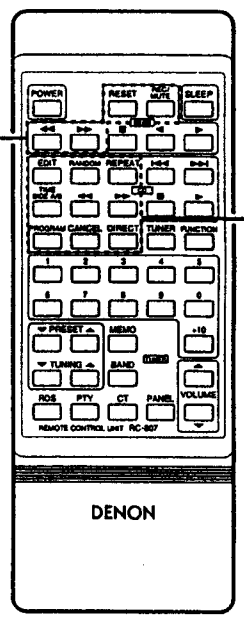
Cassette deck operation buttons

● REC / REC MUTE button
To start recording from the stop mode, press this button, then press ▶.
When this button is pressed during the recording, a blank section of approximately 5 seconds is created, after which the recording standby mode is set.

◀◀ (rewind) button
Press this button to rewind the tape.
Press this button during playback to set the music search mode (to find the beginning of selections).

▶▶ (fast-forward) button
Press this button to fast-forward the tape.
Press this button during playback to set the music search mode (to find the beginning of selections).

RESET button
Press this button to reset the tape counter to "0000".



CD player operation buttons

DIRECT button
Press this button for direct search on the CD player.

◀◀ and ▶▶ (manual search) buttons
Press these buttons during playback to move quickly forward or backward.

REPEAT button
Press this button for repeat playback.

RANDOM button
Press this button to play the tracks in random order.

PROGRAM button
Press this button for programmed playback on the CD player.

CANCEL button
Press this button to clear the last track from the program.

EDIT button
Press this button for edited recording on a tape, dividing the tracks onto sides A and B according to the length of the tape.

TIME / SIDE A / B button

- **TIME**
  Press this button during the play or pause mode to switch the time display.
  Normally the elapsed time for the track currently playing is displayed.
  When this button is pressed, the display switches to the remaining time for that track, the total remaining time on the disc, then back to the elapsed time per track.
  During programmed playback, the total remaining time display indicates the total remaining time of the programmed tracks.
- **SIDE A / B**
  Press this button during the editing operation to switch the display between sides A and B of the tape.

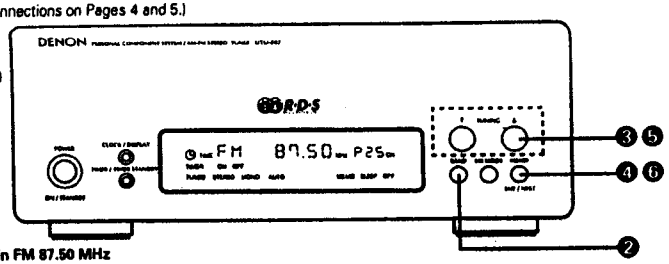
* The TIME / SIDE A / B button functions as the SIDE A / B button when it is pressed after the EDIT button is pressed and the tracks have been divided between sides A and B and before the play or pause button is pressed (before the recording mode is set).
The TIME / SIDE A / B button functions as the TIME button when it is pressed during the play, pause, or edited recording modes.

7 LISTENING TO RADIO PROGRAMS

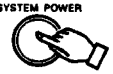
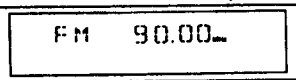
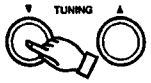
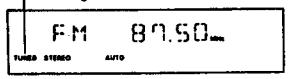
(Check the connections on Pages 4 and 5.)

TUNING

Tuner (UTU-F07)



Example: Tuning in FM 87.50 MHz
(AM stations are tuned in using the same procedure.)

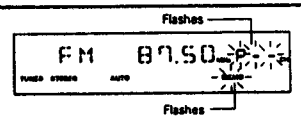
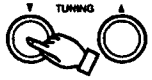
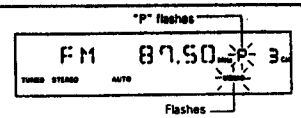
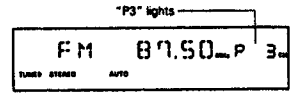
1	Set the VOLUME control on the pre-main amplifier to the minimum position, then press the SYSTEM POWER switch to turn on the power.		
2	Press the BAND button on the tuner to select the FM band.		
3	Use the TUNING UP (▲) and DOWN (▼) buttons to tune the frequency to 87.50. Once the frequency is tuned in, adjust the volume to the desired level using the VOLUME control.		

Auto Tuning

- When one of the TUNING buttons is pressed, the frequency changes in steps of 50kHz in the FM band, 9kHz in the AM band.
- If one of the TUNING buttons is held in for over 1 second, the frequency continues to change when the button is released (auto tuning) and stops when a station is tuned in. Tuning will not stop at stations whose reception is poor.
- To stop the auto tuning function, press the UP or DOWN button once.

Presetting AM and FM Stations

Example: Presetting FM 87.50 (currently tuned in) at preset number 3

4	Press the MEMO ENT/NEXT button. The MEMO indicator flashes for 10 seconds.		
5	Use the UP (▲) and DOWN (▼) buttons to call out the number at which you want to preset the station (3), or simply press the corresponding number button ③ on the remote control unit.		
6	Press the MEMO ENT/NEXT button while the MEMO indicator is flashing.		

Up to 30 AM or FM stations can be preset using this procedure.

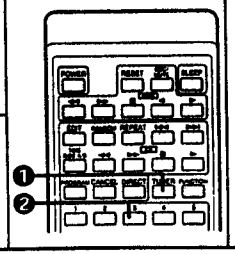
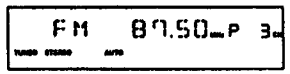
NOTES:

- In addition to the reception frequency, the reception mode (monaural or auto) is also preset, so check the display when presetting stations.
- If a station is preset at a number where a station is already preset, the previous station is replaced with the new station.
- The preset memory is not cleared immediately when the power cord is unplugged, but is cleared if the cord is left unplugged for an extended period of time. If this happens, preset the stations again.

Listening to Preset Stations

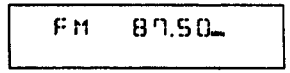
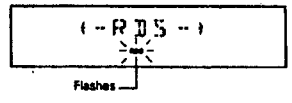
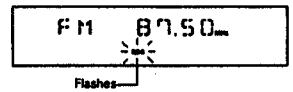
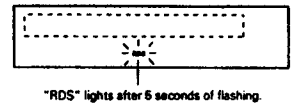
The preset stations can be recalled using the number buttons on the remote control unit.
Also, if the following operation is performed when the system power is off, the power automatically turns on and the radio is played. (Auto on function)

Example: Listening to the station preset at number 3
(This operation is only possible from the remote control unit.)

1	Press the TUNER button on the remote control unit.		
2	Press button "3" on the remote control unit.		

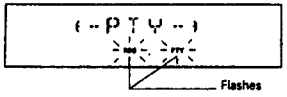
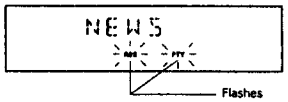
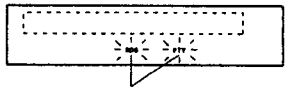
Using the RDS functions

Receiving RDS broadcasts (FM only)

1	Press the BAND button and set the FM band.		
2	Press the RDS button once.		 "RDS" blinks
3	Press the AUTO TUNING UP (▲) or DOWN (▼) button.		 "RDS" displayed
4	The station is tuned in.		 Once the station is tuned in, "RDS" flashes for 5 seconds and the program service name is displayed.

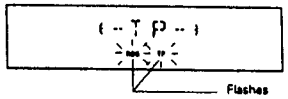
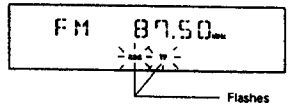
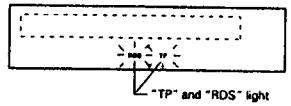
NOTE: If no RDS station is found, "NO PROG" is displayed.

PTY Search

1	Press the RDS button twice.		 ("PTY" and "RDS" flash, and "←PTY→" displayed.)
2	Press the PTY button to select the type of program. (One of the 15 types listed below can be selected.)		
3	Press the AUTO TUNING UP (▲) or DOWN (▼) button.		
4	The station is tuned in.		 Once the station is tuned in, "RDS" and "PTY" flash for 5 seconds and the program service name is displayed.

NOTE: If no program of the specified type is found, " NO PROG " is displayed.

TP Search

1	Press the RDS button 3 times.		
2	Press the (▲) UP or DOWN (▼) button of AUTO TUNING.		
3	Broadcast reception.		 Once the station is tuned in, "TP" and "RDS" light and the program service name is displayed.

NOTE: " NO PROG " is displayed when there is no traffic information broadcast station.

Receiving FM programs in stereo

- Press the FM MODE selector button to turn on the "AUTO" indicator. When a program being broadcast in stereo is received, the "STEREO" indicator lights and the program is received in stereo.
- If reception is poor and there is much noise in the stereo signals, press the FM MODE selector button to set the monaural mode.

NOTE:

- A humming sound may be heard when using a TV nearby while receiving AM programs. If this happens, move the system as far from the TV as possible.

Programs

NEWS	(News)	VARIED	(Varied)
AFFAIRS	(Current Affairs)	POP M	(Pop Music)
INFO	(Information)	ROCK M	(Rock Music)
SPORT	(Sport)	MOR M	(M.O.R. Music)
EDUCATE	(Education)	LIGHT M	(Light Classics)
DRAMA	(Drama)	CLASSICS	(Serious Classics)
CULTURE	(Culture)	OTHER M	(Other Music)
SCIENCE	(Science)		

8 USING THE TIMER

The time and timer functions are incorporated in the tuner.

Timer Settings

■Types of timer operations

TIMER : Use this to turn the power on and off at the same times every day.
SLEEP TIMER : Use this to set the power to turn off after 10 to 60 minutes, in steps of 10 minutes (operated from the remote control unit).

■Notes on timer settings

- Be sure to set the current time beforehand.
- To listen to or record a radio program ("air check") using the timer, be sure to preset the station beforehand. (Refer to "Presetting AM and FM Stations" on Page 10.)

Power Failures

Should there be a power failure or should the power cord be unplugged, the time display will flash at " 00 : 00 ". If this happens, reset the current time.
Also check the timer and tuner presettings, and reset them if they have been cleared.

Checking the Settings

To check the timer settings, press the TIMER/TIMER STANDBY button for at least 3 seconds. (This can also be done when the tuner's power is off.) Next, press the ENTER/NEXT button repeatedly to display the timer start mode, the reception band and preset channel number when in the tuner mode, the on time and the off time. Press the ENTER/NEXT button once more to return to the current mode display.

Changing the Settings

Repeat the timer setting operation to erase the previous settings and set the new settings.

Clearing the Settings

Press the TIMER/TIMER STANDBY button for at least 3 seconds, then press it for at least 3 seconds again while "FUNC" is displayed to clear the timer settings.

Note on Setting the Timer

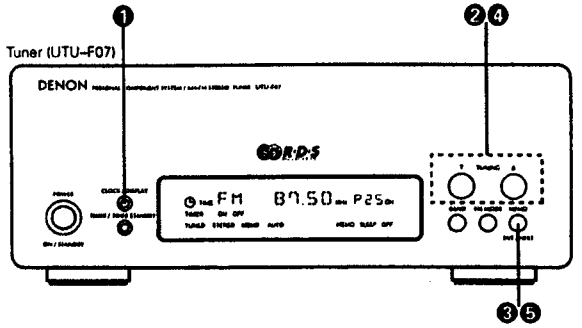
If the time set with the timer is reached while the system power is on, the operation switches to the operation set by the timer.

Turning the Timer Off

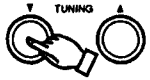
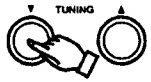
Press the TIMER/TIMER STANDBY button to turn the ◷ mark off.

Setting the Current Time

The time is displayed in the 24-hour mode.



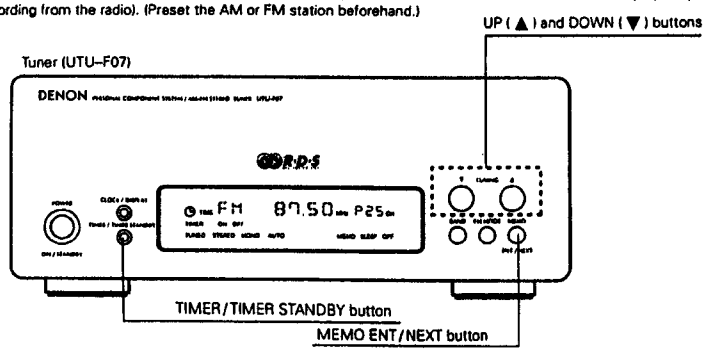
Example: Setting to 19:30 (7:30 p.m.)

1	Press the CLOCK/DISPLAY button for at least 3 seconds.		0:00 The hours place flashes. (If the hours have already been set, that number flashes.)
2	Use the UP (▲) and DOWN (▼) buttons to set the hours.		19:00 The hours place flashes.
3	Press the MEMO ENT/NEXT button.		19:00 The minutes place flashes. (If the minutes have already been set, that number flashes.)
4	Use the UP (▲) and DOWN (▼) buttons to set the minutes.		19:30 The minutes place flashes.
5	Press the MEMO ENT/NEXT button at the sound of a time service's chime. The time display stops flashing and the clock starts running.		19:30 The display stops flashing and the clock starts running from 00 seconds.

- The current time can be set even when the power is off.
- If an RDS station offers a time service, the time can be set by pressing the CT button on the remote control unit while that station is tuned in.

Setting the Timer

The power can be set to turn on and off every day at the same time in any of five modes: tuner, CD, cassette deck, MD player (optional) and air check (recording from the radio). (Preset the AM or FM station beforehand.)



Example: Setting the tuner to turn on at 12:35, off at 12:56 (with FM 87.50 MHz preset at channel "3")

1	Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power.	SYSTEM POWER	FM 90.00 P 1 Say that FM 90.00 MHz is tuned in at preset channel number "1".
2	Press the TIMER/TIMER STANDBY button for at least 3 seconds to set the timer setting mode.	TIMER/TIMER STANDBY	FUNC
3	Use the UP (▲) and DOWN (▼) buttons to set the "TUNER" mode.	TUNING	TUNER
4	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	Flashes 87.50 P 3
5	Use the UP (▲) and DOWN (▼) buttons to set the preset channel number.	TUNING	
6	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	0:00 Flashes (If the timer has already been set, that number flashes.)
7	Use the UP (▲) and DOWN (▼) buttons to set the hours for the timer on time.	TUNING	12:00 Flashes
8	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	12:00 Flashes (If the timer has already been set, that number flashes.)
9	Use the UP (▲) and DOWN (▼) buttons to set the minutes for the timer on time.	TUNING	12:35 Flashes
10	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	0:00 Flashes
11	Use the UP (▲) and DOWN (▼) buttons to set the hours for the timer off time.	TUNING	12:00 Flashes
12	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	12:00 Flashes (If the timer has already been set, that number flashes.)
13	Use the UP (▲) and DOWN (▼) buttons to set the minutes for the timer off time.	TUNING	12:56 Flashes (If the timer has already been set, that number flashes.)
14	Press the MEMO ENT/NEXT button.	MEMO ENT/NEXT	FM 90.00 P 1 The display returns to as it was before the timer setting mode was set.
15	Press the TIMER/TIMER STANDBY button.	TIMER/TIMER STANDBY	Lights FM 90.00 P 1
16	Press the SYSTEM POWER switch on the pre-main amplifier to turn off the system's power.	SYSTEM POWER	10:15

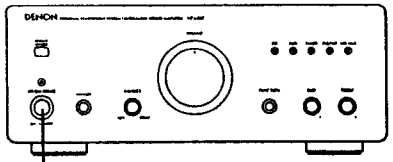
If the ◷ mark is displayed after the TIMER/TIMER STANDBY button is pressed, the timer will operate at the same times every day. To turn the timer off, press the TIMER/TIMER STANDBY button again to turn the ◷ mark off.

NOTE:

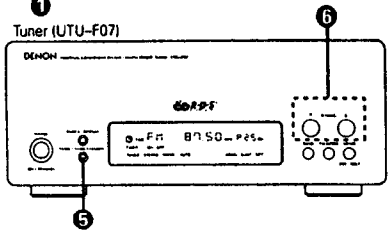
- The standby mark (" ◷ ") will not light if the current time is not set. If this is the case, set the current time, then press the TIMER/TIMER STANDBY button.

Various Timer Operations

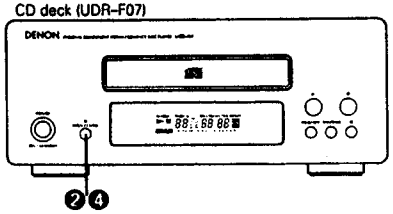
Pre-main amplifier (UPA-F07)



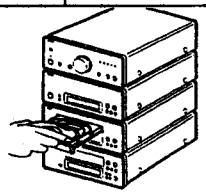
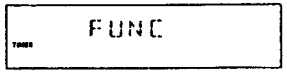
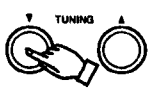
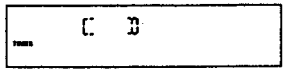
Tuner (UTU-F07)



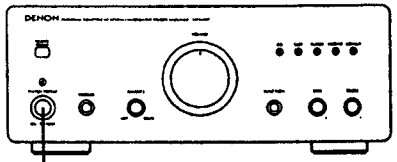
CD deck (UDR-F07)



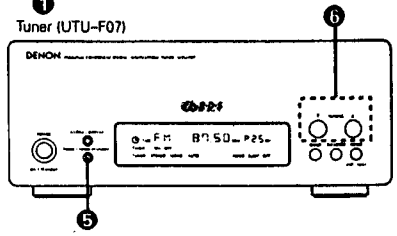
Example 1: Playing a compact disc with the timer

1	Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power.		
2	Press the CD player's ▲ OPEN/CLOSE button to open the disc tray.		
3	Load the disc in the disc tray. Refer to Page 20.		
4	Press the CD player's ▲ OPEN/CLOSE button again to close the disc tray.		
5	Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.		
6	Use the tuner's UP (▲) and DOWN (▼) buttons to set the "CD" mode.		
7	Now follow steps 6 to 16 under "Setting the Timer" on Page 13.		

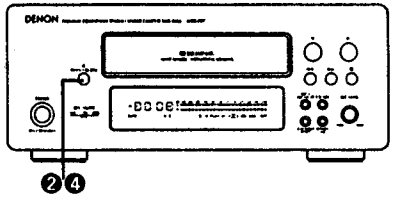
Pre-main amplifier (UPA-F07)



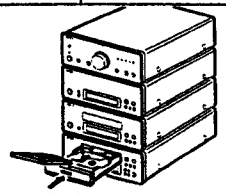
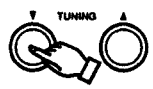
Tuner (UTU-F07)



Cassette deck (UDR-F07)

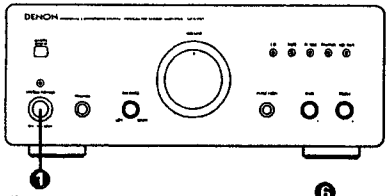


Example 2: Playing a cassette tape with the timer

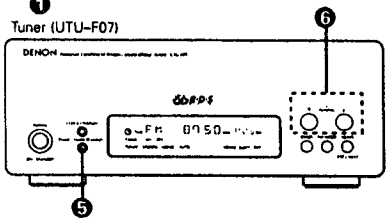
1	Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power.		
2	Press the cassette deck's ▲ OPEN/CLOSE button to open the cassette tray		
3	Load the cassette tape in the cassette tray. Refer to Page 16.		
4	Press the cassette deck's ▲ OPEN/CLOSE button again to close the cassette tray.		
5	Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.		
6	Use the tuner's UP (▲) and DOWN (▼) buttons to set the "TAPE" mode.		
7	Now follow steps 6 to 16 under "Setting the Timer" on Page 13.		

• Check that the direction of tape travel, reverse mode and Dolby NR mode are set as desired.

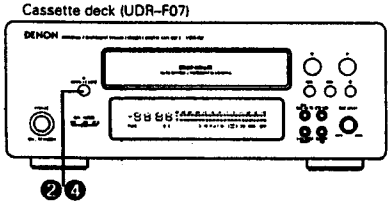
Pre-main amplifier (UPA-F07)



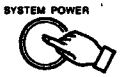
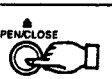
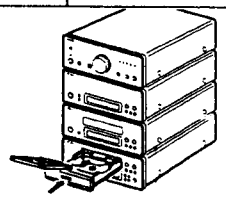
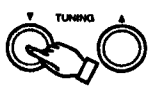
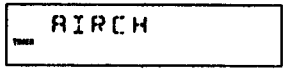
Tuner (UTU-F07)



Cassette deck (UDR-F07)



Example 3: Unattended recording of radio programs ("air check")

1	Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power.		
2	Press the cassette deck's ▲ OPEN/CLOSE button to open the cassette tray		
3	Load the cassette tape in the cassette tray. Refer to Page 16.		
4	Press the cassette deck's ▲ OPEN/CLOSE button again to close the cassette tray.		• For instructions on setting the reverse mode and Dolby NR mode, refer to 2 and 3 on Page 19.
5	Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.		
6	Use the tuner's UP (▲) and DOWN (▼) buttons to set the "AIRCH" mode.		
7	Now follow steps 6 to 16 under "Setting the Timer" on Page 13.		

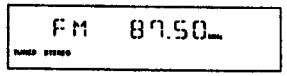
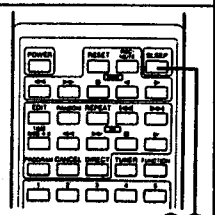
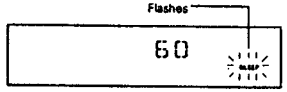
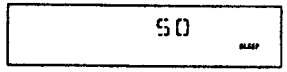
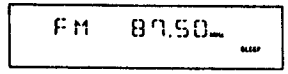
- *Check that the direction of tape travel and reverse mode are set as desired.*
- Timer recording starts in the direction indicated on the display.

Recording is not possible on the leader tape at the beginning of the cassette tape, so to avoid missing any of the program, we recommend setting the timer to approximately 1 minute before the program is scheduled to start.

Setting the Sleep Timer

With this function, the power can be set to turn off after 10 to 60 minutes, in steps of 10 minutes, using the remote control unit.

Example: Setting the power to turn off in 50 minutes
(This operation is only possible from the remote control unit.)

1	Tuner currently set to FM 87.50 MHz		
2	Press the SLEEP button.		
3	Press the SLEEP button again while the "SLEEP" indicator is flashing.		
4	The previous display reappears after 5 seconds. The "SLEEP" indicator remains lit, indicating that the sleep timer is functioning.		

- The time is reset to "60" (60 minutes) if the SLEEP button is pressed again while the sleep timer is functioning.

Cancelling the Sleep Timer

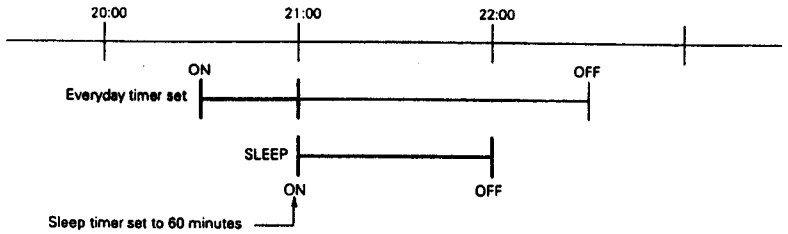
Press the SLEEP button repeatedly until the "SLEEP" indicator turns off.
The sleep timer is also cancelled if the amplifier's SYSTEM POWER switch or the POWER switch on the remote control unit is pressed, turning the system power off.

NOTE:

- If the times set with the sleep and everyday timers overlap, the sleep timer has priority.

Order of priority of the sleep and everyday timers

The sleep timer has priority for the off time. (The system operates as indicated by the bold lines.)



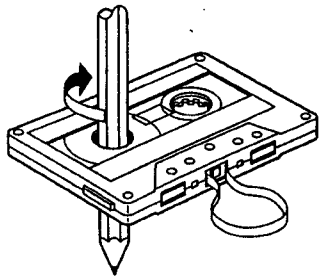
Even when the power was turned on with the timer, the power turns off if the remaining time of the sleep timer reaches "00" before the off time set with the everyday timer is reached. If the everyday timer's on time is reached while the sleep timer is functioning, the everyday timer does not function.

9 BEFORE RECORDING AND PLAYING TAPES

About Cassette Tapes

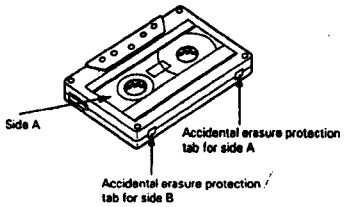
■Cautions on handling cassette tapes

- C-120 cassette tapes
  C-120 (120-minute) cassettes use very thin tape which can easily get caught on the capstans and pinch rollers. We recommend not using C-120 tapes.
- Tape slack
  If the tape is slack, it may get caught in the mechanism and damaged. Take up any slack in the tape with a pencil, etc., before loading the cassette.



■Preventing accidental erasure

- Cassette tapes have tabs for preventing accidental erasure. Use a screwdriver, etc., to break off the tabs to prevent recordings from being accidentally erased.
- To record on a tape whose tabs have been broken, place a piece of cellophane tape, etc., over the tab holes.



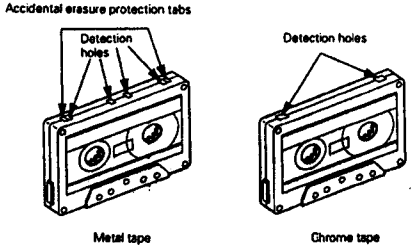
■Notes on storing cassette tapes

- Avoid placing cassette tapes in the following types of places:
  - Hot or humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic sources (TVs, speakers, etc.)
- Store cassette tapes in cases with stoppers to prevent the tape from getting slack.

Auto Tape Selector Mechanism

The D-F07 is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to detect the type of tape and automatically set the most appropriate recording bias and equalization for that type of tape.

- Do not use ferrichrome tapes.
- When an old metal tape with no detection holes is used, the treble will be stressed excessively, so use metal tapes with detection holes.



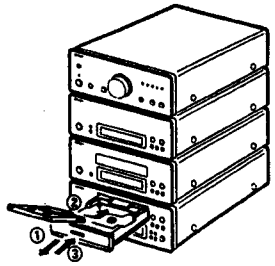
Loading and Unloading Cassette Tape

NOTE:

- Load cassette tapes with the side on which the tape is exposed facing the set. Loading them the other way may result in damage.

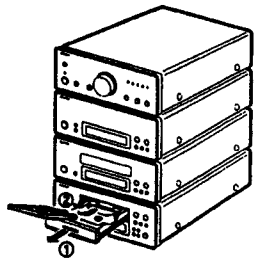
■Loading

① Press the OPEN/CLOSE button. The cassette tray opens.
② Load the cassette tape in the cassette tray as shown on the diagram below, with the side on which the tape is exposed facing inside.
③ Press the OPEN/CLOSE button to close the cassette tray.



■Unloading

① Press the OPEN/CLOSE button. The cassette tray opens.
② Remove the tape.



Check the following before recording or playing cassette tapes:

1. Are the heads dirty? ..... The sound quality will be poor if the heads are dirty.
   Refer to Page 25.
2. Are the accidental erasure protection tabs broken off? .... Recording is not possible if the accidental erasure protection tabs on the top of the cassette are broken off.
   Refer to Page 16.

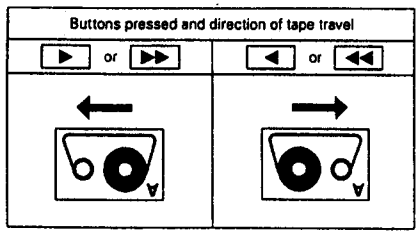
Using the Auto Reverse Function

This deck is equipped with an auto reverse function, so the tape can be played or recorded on both sides or played continuously without removing the cassette.

■Direction of tape travel

This deck is equipped with two play buttons, one for the forward direction (front side) and one for the reverse direction (back side). If the button for the opposite direction is pressed during playback, playback switches to the other side.

The front side is the side facing up when the tape is loaded in the cassette tray.

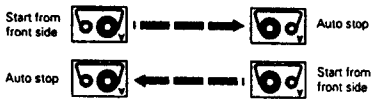


■Reverse mode

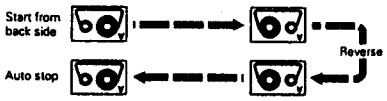
There are three reverse modes, as described below. For instructions on switching between them, refer to Page 17, 18.

- **Single-sided recording / playback mode (⇄)**

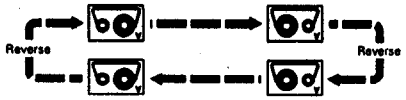
  Use this to record or play only the front or back side.
  (The stop mode is set automatically when the end of that side of the tape is reached.)



- **Double-sided recording / playback mode (⊃)**
  - In this mode, when the end of the front side of the tape is reached during recording or playback, the tape automatically switches to the back side and playback or recording continues.
    (The stop mode is set automatically when the end of the tape on the back side is reached.)



* When started from the back side, only the back side is recorded or played.



* During recording, the deck automatically operates in the same way as for the double-sided recording/playback mode (⊃).

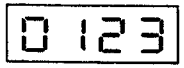
- **Continuous play mode (↻)**

  In this mode, playback continues until the stop button is pressed.

Using the Tape Counter

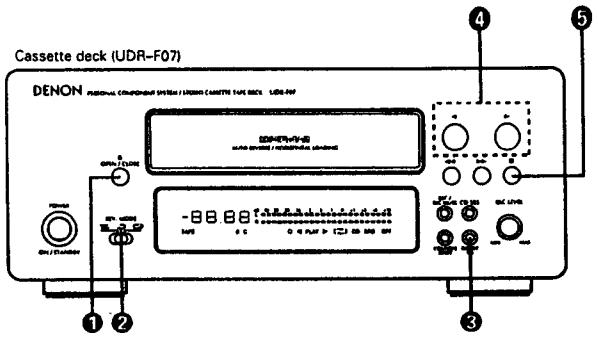
■Tape counter

The D-F07's tape counter indicates the tape's elapsed time as the continuous number.

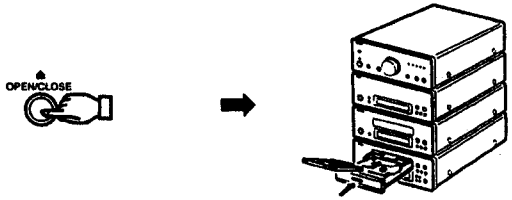
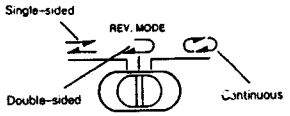
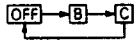


- The counter is reset to " 0000 " when a new tape is loaded and when the RESET button is pressed.
- If you make notes on the number on the counter and the recorded content while recording or playing tapes, these notes can be used to easily find the section you want to play or record.

10 PLAYING CASSETTE TAPES (single-sided, double-sided and continuous playback)



The R mark indicates operations which can also be performed on the remote control unit.

1	Press the ▲ ONCE/CLOSE button and load a recorded tape in the cassette tray. Refer to Page 16.	
2	Slide the REV. MODE selector switch. Refer to Page 17.	
3	Press the DOLBY NR button display the Dolby mode. Refer to Page 8.	 The mode changes as follows each time the button is pressed:  When playing tapes recorded with Dolby NR, set the Dolby mode to the same mode (B or C) as when the tape was recorded.
4	Press the play button (▶ or ◀). R	 Playback begins in the direction of that button
5	To stop playback, press the stop button (■). R	

Fast-forwarding and rewinding

1	When listening to the front side:  (when ▶ is lit) R	Press the stop button. ■ Direction of travel To scan backward ◀◀ To scan forward ▶▶
2	When listening to the back side:  (when ◀ is lit) R	Press the stop button. ■ Direction of travel To scan forward ◀◀ To scan backward ▶▶

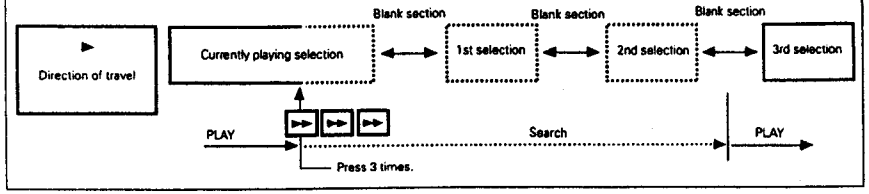
Using the Music Search Function (automatically finding the beginning of selections)

■ Use this function to move back to the beginning of the current selection or forward to the beginning of the following selection.
■ This function can also be used to skip over selections (up to 99 selections in either direction).

1	When listening to the front side: (when ▶ is lit) R	To move to the beginning of the current selection: Press once. To move back 5 selections: Press 6 times.	To move to the beginning of the following selection: Press once. To move ahead 5 selections: Press 5 times.
2	When listening to the back side: (when ◀ is lit) R	To listen to the following track: Press once. To listen to the track 5 tracks forward: Press five times.	To return to the beginning of the current track: Press once. To return to the track 5 tracks before: Press six times.

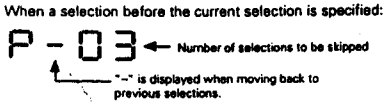
- To fast-forward or rewind the tape, first press the stop ■ button, then press the ▶▶ or ◀◀ button.
- The music search function will only work if there are blank sections of at least 4 seconds between selections.

Example: To move ahead 3 selections

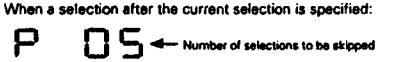


Music Search Display

- When a selection before the current selection is specified:

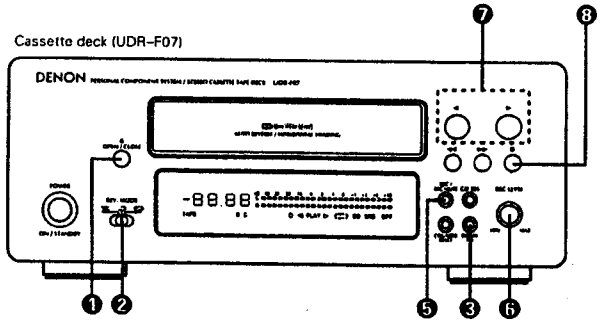


- When a selection after the current selection is specified:



During the music search function, the number of selections to be skipped is displayed on the tape counter, and decreases each time a blank section is detected. (For example, P03 → P02 → P01 → P00 when moving 3 selections ahead.)
The tape counter reappears when the operation is completed.

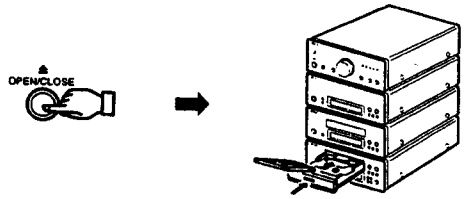
11 RECORDING CASSETTE TAPES



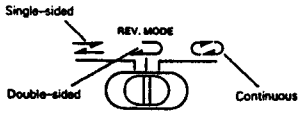
- Before recording on a cassette tape, check that its accidental erasure protection tabs are intact. Recording is not possible if the tabs are broken off.
- The positions of the VOLUME, TREBLE and BASS controls on the pre-main amplifier do not affect the recording.

The R mark indicates operations which can also be performed on the remote control unit.

1 Press the ▲ OPEN/CLOSE button and load the tape onto which you want to record in the cassette tray. Refer to Page 16.

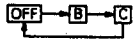


2 Slide the REV.MODE selector switch to the ⇄ or ⮌. Refer to Page 17.

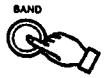
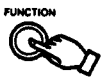
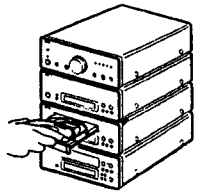
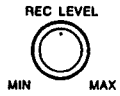


3 Press the DOLBY NR button display the Dolby mode. Refer to Page 8.

The mode changes as follows each time the button is pressed:



To record in Dolby NR, set to "B" or "C".

	To record the radio	To record from the component connected to the AUX terminals	To record a CD
4	Press the tuner's BAND selector button.  Tune in the station to be recorded. Refer to Page 10. R	Press the FUNCTION button on the pre-main amplifier to select "MD/AUX".  Starting playback on the MD player, video deck or LD player. R	Load the disc in the CD player. Refer to Page 20.  Press the CD player's play button to start playback.
5	Press the REC/REC MUTE button. 		The recording pause mode is set and the recording indicator (●) appears on the display.
6	Adjust the recording level. 		The recording level of the source being played is displayed on the level meter. Use the REC LEVEL control to adjust the recording level. (Refer to "Adjusting the REC LEVEL Control" below.)
7	Press the play button (▶ or ◀). (Recording starts.)  "PLAY" appears on the display. R		**7** ● For synchronized recording of CDs  Press the stop buttons on the CD player and cassette deck, then press the CD SRS button. "CD SRS" appears on the display. (Recording starts.) * When the CD SRS button is pressed, a blank section of 9 seconds is automatically created before recording starts. * CD SRS recording starts in the direction of travel indicated on the display (◀ or ▶), so press the ◀ or ▶ button to switch to the desired direction after loading the tape, then press the stop ■ button to set the desired direction for CD SRS recording.
8	To stop recording, press the stop button (■). R		

- If the CD player's play button is pressed in the recording pause mode, recording of the CD begins automatically.
- The CD SRS function will not work if the CD player is set to the random play or program mode.

Adjusting the REC LEVEL Control

The recorded sound will be distorted if the recording level is too high, or there will be much noise if the recording level is too low. It is important to set the recording level to an appropriate setting to achieve a good quality recording.

- Watch how far the level meter lights and adjust the REC LEVEL control accordingly.

Optimum recording input level (approximate)

Type-I (normal) tapes:	Meter lights up to 0dB
Type-II (CrO_2) tapes:	Meter lights up to +1dB
Type-IV (metal) tapes:	Meter lights up to +3dB

NOTE:

The actual recording level differs depending on the source and the type of tape, so make a trial recording first to check the recording level.

12 PLAYING CDs

About Compact Discs

COMPACT disc DIGITAL AUDIO

Only discs with the mark shown left can be played on the D-F07.

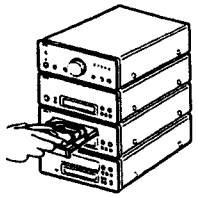
- For CDVs, only the audio part is played. (The video part is not played.)

Disc	Remarks
CD	
CDV	Only the audio part is played.
CD singles (8cm discs)	

■Removing discs from their cases

As shown on the diagram, grasp the outer edge of the disc with your fingers, insert a finger in the center hole, press gently, then lift the disc out of the case.

■Loading discs in the disc tray



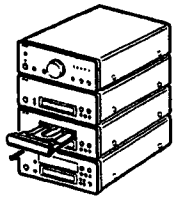
Be sure to load the disc with the labelled side facing up. (Compact discs only play on one side.) For 8cm CDs, set the disc in the sunken section in the center of the tray.

NOTES:

- The disc tray opens when the OPEN/CLOSE button is pressed once and closes when it is pressed again.
- When the disc tray is closed, the disc turns automatically for several seconds, then the total number of tracks and total playing time of that disc appear on the display.
- The disc tray can also be closed by pressing the play button (▶), in which case playback automatically starts from the first track on the disc (or if tracks are programmed, from the first programmed track).

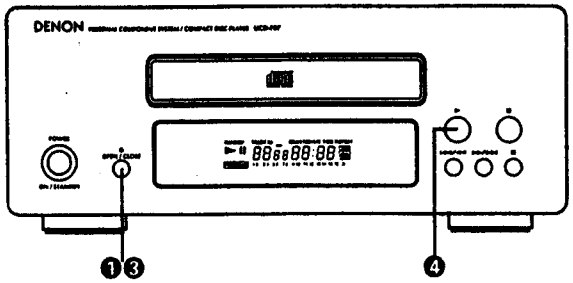
Handling the Disc Tray

Do not turn off the power, stop the disc tray by hand or pull on it when it is moving. Doing so may damage it.
If the headphones' cord or some other object accidentally gets caught in the disc tray while it is closing and the disc tray stops, press the OPEN/CLOSE button again to open the tray and remove the obstacle.
Do not set objects other than discs on the disc tray. Doing so may damage it.



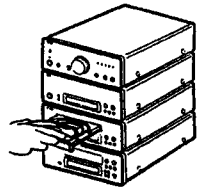
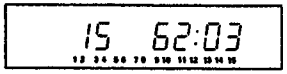
Normal Playback

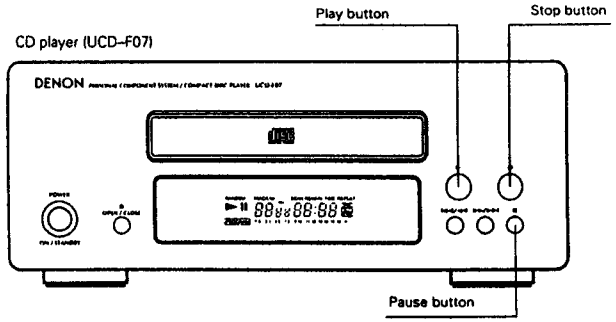
CD player (UCD-F07)



Example: Playing a disc containing 15 tracks and with a playing time of 62 minutes, 03 seconds, starting from the first track

The R mark indicates operations which can also be performed on the remote control unit.

1	Press the ▲ OPEN/CLOSE button to open the disc tray.		
2	Load the CD in the disc tray.		
3	Press the ▲ OPEN/CLOSE button. The disc tray closes. The display appears after several seconds.		
4	Press the play button (▶). R		



Interrupting playback temporarily

Press the pause button (⏸).	⏸	The " ⏸ " mark appears on the display, and playback stops at the point where the button was pressed.

Resuming playback

Press the play button (▶). R	▶	The " ⏸ " mark turns off on the display, and playback resumes from the point where the pause button was pressed.

Stopping playback

Press the stop button (■). R	■	15 62:03

NOTES:

- When a disc is loaded, " LEAd IN " is displayed on the display for several seconds while the data on the number of tracks and total playing time is being read from the innermost side of the disc, after which the number of tracks and total playing time appear.
- If no disc is loaded, if the disc is upside down, or if the data cannot be read properly due to scratches or dirt, the display reads as shown below and the disc will not play.

dISC

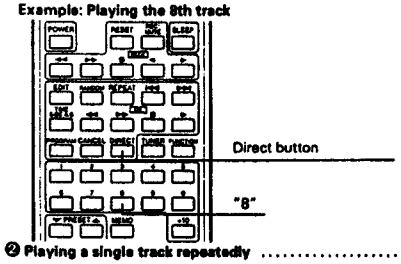
Various Playback Functions

In addition the regular playback, the D-F07 also offers the following playback functions:

❶ Playing a specific track ..... **Direct Search**

(Using the remote control unit)

Example: Playing the 8th track

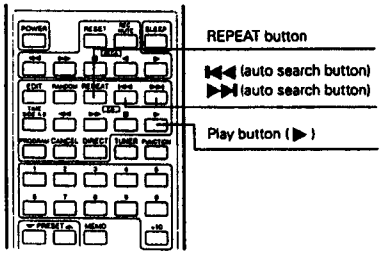


① Press the DIRECT button.
② Press the button corresponding to the number of the track 8. "8" appears on the track number display and playback of track number 8 begins.

- When the end of the track is reached, playback continues on the next track.
- To specify a track number of 11 or greater, say track 15, press [+10] then [5], and to specify a track number of 20 or greater, say track 23, press [+10], [+10] then [3].
  To play track 20, press [+10] then [10].

❷ Playing a single track repeatedly ..... **Single-track Repeat**

(Using the remote control unit)

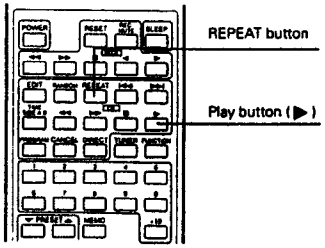


① When the REPEAT button is pressed once, REPEAT [ONE] appears on the display and the single-track repeat mode is set.
② Use the ⏮ and ⏭ buttons to select the track to be repeated.
③ Press the play button (▶) to start playback.

- When the end of the specified track is reached, playback starts over from the beginning of that track.
- The single-track repeat mode can also be set by pressing the REPEAT button once during playback.
- To cancel the single-track repeat mode, press the REPEAT button repeatedly until the "REPEAT" indicator turns off.

❸ Playing all the tracks repeatedly ..... **All-track Repeat**

(Using the remote control unit)

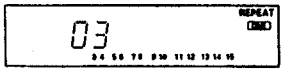
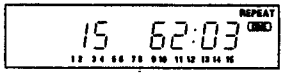
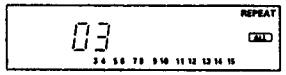
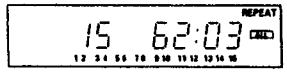
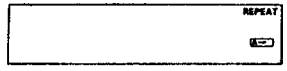


① When the REPEAT button is pressed twice, REPEAT [ALL] appears on the display and the all-track repeat mode is set.
② Press the play button (▶) to start playback.

- The all-track repeat mode can also be set by pressing the REPEAT button twice during playback.
- To cancel the all-track repeat mode, press the REPEAT button to turn the "REPEAT" indicator off.
- If the REPEAT button is pressed during programmed playback, the tracks are played repeatedly in the programmed order.

④ Playing a certain section repeatedly ..... A–B Repeat

Example: Using a CD containing 15 tracks

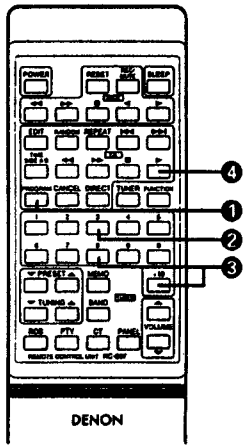
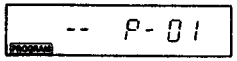
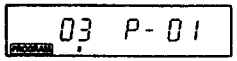
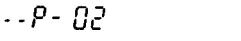
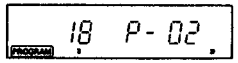
1st press	(1) When pressed during playback: 	The single-track repeat mode is set and "REPEAT" and "ONE" light.
	(2) When pressed before playback: 	The single-track repeat mode is set and "REPEAT" and "ONE" light. Next, ① Press the play button (▶) to play the first track repeatedly. ② If playback is started using the direct search buttons on the remote control unit or the ▶▶/▶▶I and I◀◀/◀◀ buttons on the CD player, the specified track is played repeatedly.
2nd press	(1) When pressed during playback: 	The all-track repeat mode is set and "REPEAT" and "ALL" light.
	(2) When pressed before playback: 	The all-track repeat mode is set and "REPEAT" and "ALL" light. Then press the play button (▶) or direct search buttons on the remote control unit to play.
3rd press	When pressed during playback: 	"REPEAT" and "A→" light.
4th press	When pressed during playback: 	"REPEAT" and "A→B" light, and the section between points A and B is played repeatedly.

Press the REPEAT button again to return to normal playback.

⑤ Playing the tracks in a certain order ..... Programmed Playback

(Using the remote control unit)
Example: Programming the 3rd track to play first, the 18th track to play second, using a CD containing 18 tracks and with a playing time of 62 minutes, 03 seconds

Procedure

1	Press the PROGRAM button.		
2	Press "3" to set the 3rd track at the first place in the program.		 After 2 seconds  display when the 3rd track is set at the first place
3	Press "+10" and "8" to set the 18th track at the second place in the program.		 After 2 seconds  display when the 18th track is set at the second place
4	Press the play button (▶).		The tracks are played in the programmed order.

- When the TIME button is pressed before playback, the total playback time of programmed tracks is displayed.
- Press the DIRECT button to resume normal playback during the programmed playback.
- To cancel the entire program, press the DIRECT button or cancel the program one by one using the CANCEL button.
- If you want to correct the programmed track, press the automatic/manual search reverse button (I◀◀/◀◀) to display the track to correct and press the desired number button on the remote control unit. Press the CANCEL button instead of the number button to cancel the displayed track. After finishing the correction, press the automatic/manual forward button (▶▶/▶▶I) repeatedly until " -- " is displayed on the track number display.

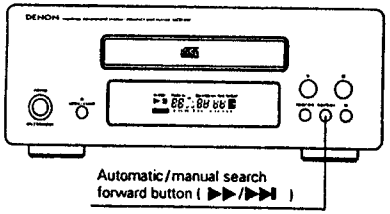
Other operations possible during programmed playback:
Such operations as quick search, pause and skip monitor are also possible during programmed playback.
For the quick search function, press the automatic/manual search reverse button (I◀◀/◀◀) to move back to the beginning of the track, then press it again while the time display reads " 00:00 " to move back to the beginning of the preceding track.
To move ahead to the beginning of the next track, press the automatic/manual search forward button (▶▶/▶▶I), regardless of the time display.

NOTES:

- The numbers of the programmed tracks on the music calendar turn off after the tracks have been played.
- With this CD player, up to 20 tracks with any track number between 1 and 99 can be programmed.
- If a number greater than the total number of tracks on the disc is specified, that number will not be displayed.
- Programming is also possible with the disc tray open. In this case it is possible to program a track number not included on the disc, but when the program is played, that track number will be skipped.
- The entire program is cancelled when the OPEN/CLOSE button is pressed.
- If you make a mistake when programming, press the CANCEL button to cancel the mistake. (The last track in the program is cancelled each time the CANCEL button is pressed.)
- The A–B repeat functions do not work during programmed playback.
- Set the stop mode when cancelling tracks from the program.

❻ Moving ahead to the next track during playback ..... **Quick Search**

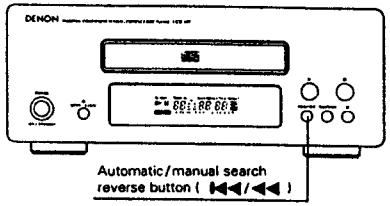
CD player (UCD-F07)



Press the automatic/manual search forward button (▶▶/▶▶|).

❼ Moving back to the beginning of the track during playback ..... **Quick Search**

CD player (UCD-F07)



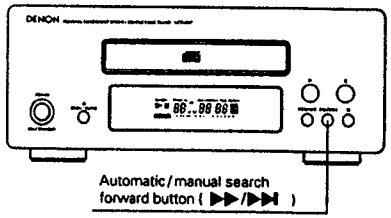
Press the automatic/manual search reverse button (|◀◀/◀◀).

❽ Finding a certain spot on the disc while listening to the sound ..... **Skip Monitor**

- Use this function to skip through the disc while listening to the sound.
- When the desired spot is reached using the skip monitor function, release the automatic/manual search forward button (▶▶/▶▶|) or automatic/manual search reverse button (|◀◀/◀◀) to resume normal playback from that point.

(1) Forward skip monitor

CD player (UCD-F07)

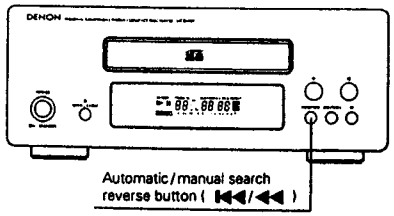


- The track currently being monitored and the elapsed time for that track are indicated on the display.
- If the end of the last track on the disc is reached while pressing the automatic/manual search forward button (▶▶/▶▶|), "End" appears on the display and the manual search operation stops.
  To continue playback, press and hold in the automatic/manual search reverse button (|◀◀/◀◀) until a track number appears on the display, then perform the desired operation.

During playback, press and hold in the automatic/manual search forward button (▶▶/▶▶|) to skip through the disc in the forward direction while listening to the sound.

(2) Reverse skip monitor

CD player (UCD-F07)



- The track currently being monitored and the elapsed time for that track are indicated on the display.
- If the automatic/manual search reverse button (|◀◀/◀◀) is pressed continuously, it will reach the beginning of the first track on the disc.
  Release the automatic/manual search reverse button (|◀◀/◀◀) to resume normal playback.

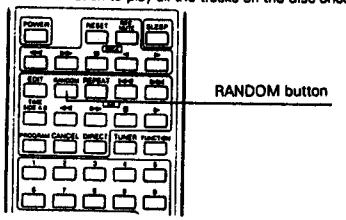
During playback, press and hold in the automatic/manual search reverse button (|◀◀/◀◀) to skip through the disc in the reverse direction while listening to the sound.

If the automatic/manual search forward or automatic/manual search reverse button is pressed during programmed playback then released at a track not in the program, instantly the next track in the program is searched and played.

❾ Playing the tracks in random order ..... **Random Playback**

(Using the remote control unit)

- Use this function to play all the tracks on the disc once in random order.



- Press the RANDOM button to turn on the "RANDOM" indicator, then press the play button to start random playback in the programmed playback mode.
- In the normal playback mode, simply press the RANDOM button to start random playback.

- The programmed tracks can be played in random order by pressing the RANDOM button when tracks are programmed.
- If the RANDOM button is pressed while the repeat mode is set, the tracks are each played once in random order, then played again in another order, and so on.
- Random playback cannot be set in the A-B repeat mode.
- While the next track is being searched for, any numbers of the tracks on the disc are not displayed on the track number display so it is not possible to know which track will be played next.
- The repeat mode is set to the all-track repeat mode when the RANDOM button is pressed during the single-track repeat mode.

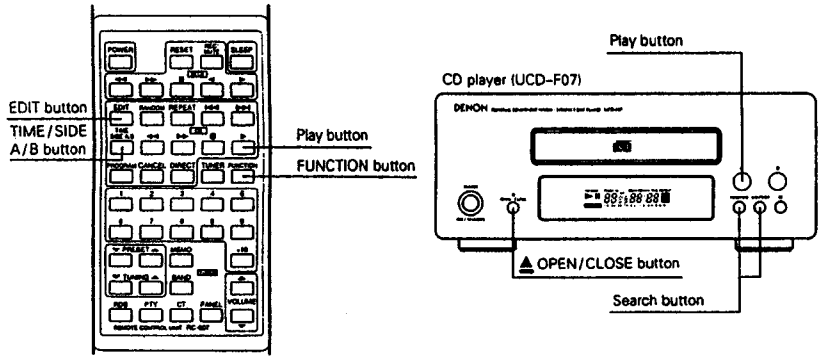
NOTES:

- The total remaining time cannot be displayed during the random playback mode.
- The random playback mode cannot be set during editing.

Edited Recording on Sides A and B of a Tape

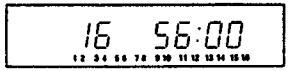
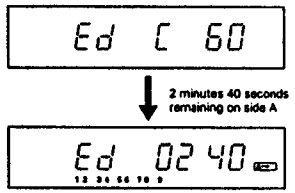
This function allows edited recording according to the size of the tape. (This operation is only possible from the remote control unit.)
- Use this function to efficiently edit the tracks on a CD according to the length (time) of the tape onto which you want to record.

NOTES:
- In the edited recording mode, it is programmed so that the remaining time of the tape becomes minimum and the last programmed track may be out of line on both side. If you want to make serial track recording in this case, use the CD SRS button after stopping the edited recording mode. Refer to Page 19.
- Load the cassette tape onto which you want to record in the cassette deck with side A on the top before starting the editing procedure. The tape is automatically wound to the beginning before recording starts.
- The editing mode is cancelled when the CD player's stop button is pressed.
- Note that even if the tape is slightly longer than the disc's total playing time, it may not be possible to record all the tracks on sides A and B because of the combination of tracks to be recorded on the different sides of the tape.
- When recording on an already recorded tape, if the tape is longer than the new recording, the previous recording will remain at the end of side B, so erase the tape before starting.
- To protect the recording, do not press the FUNCTION (input selector) button during edited recording.
- During edited recording, only the stop button, POWER switch, and TIME button for the CD player and the RESET button, stop button, DOLBY NR button, and POWER switch for the cassette deck will function.
- Blank sections of 4 seconds are automatically created between all the selections to make it easier to search for selections on tapes recorded on this system. Since this differs from the actual time between tracks on the CD, the displayed time and the actual remaining time on the tape differ slightly.
- During edited recording, if the deck's reverse mode is set to ⇄, it automatically switches to the ⇉ mode and side B is recorded.
- The total remaining time cannot be displayed during the programmed edited recording.



❶ Recording the tracks in the same order as on the disc ..... **Automatic Edited Recording**

Example: Recording a disc containing 16 tracks and a total playing time of 56 minutes on a C-60 cassette tape

1	Press the CD player's ▲ OPEN/CLOSE button to open the disc tray. Load the disc in the disc tray.		
2	Press the ▲ OPEN/CLOSE button to close the disc tray. The display appears after several seconds.		
3	Press the FUNCTION button on the remote control unit or the pre-main amplifier to set the CD mode.		
4	Press the EDIT button on the remote control unit to set the length of the tape. (The length is the total for sides A and B.) For a 60-minute (C-60) tape, press the EDIT button 4 times.		Load the cassette tape onto which you want to record in the cassette deck with side A facing up.
	The display changes as shown below each time the EDIT button is pressed. (If the tape length has already been set once, the display changes starting from that length.) C-46 (46-minute tape) → C-50 (50-minute tape) → C-54 (54-minute tape) → C-60 (60-minute tape) → C-74 (74-minute tape) → C-90 (90-minute tape) → C-100 (100-minute tape) → C-120 (120-minute tape)		Example: For a 60-minute tape  2 minutes 40 seconds remaining on side A Side A display – Tracks 1 to 9 will be recorded on side A.
5	Press the TIME/SIDE A/B button on the remote control unit. The display switches between sides A and B each time the button is pressed.		1 minute, 20 seconds remaining on side B  Side B display
6	Press the play button on the remote control unit or the CD player.		Track no. Elapsed time 
7	The tape is automatically wound to the beginning on the cassette deck, then recording starts.		

❷ Recording the tracks in a specific order ..... **Programmed Edited Recording**

① Program the desired tracks as described in "Programmed Playback" on Page 22.
② Follow steps 4 to 6 for automatic edited recording.

13 AUTO ON FUNCTION

- When the play button or OPEN/CLOSE button on the CD player or cassette deck is pressed while the power is set to the standby mode, the power automatically turns on and the play or open/close operation is performed.
- In the same way, when the tuner preset up/down buttons on the remote control unit is pressed, the power turns on and the corresponding station is tuned in.

14 OTHER INFORMATION

Cleaning the Heads

- If the cassette deck's heads are dirty, tapes cannot be played or recorded with good sound quality.
- To take full advantage of all the performance this cassette deck has to offer and ensure good quality sound, clean the heads periodically after approximately 10 hours of use, using a commercially available cleaning cassette.

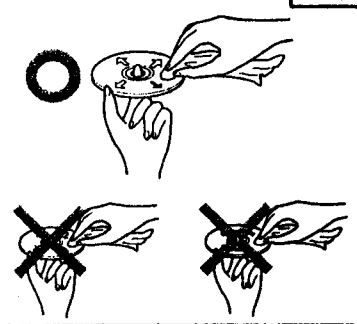
NOTE

Some commercially available cleaning cassettes are highly abrasive and may damage the heads. Avoid using such cleaning cassettes.

Demagnetizing the Heads

- The heads become magnetized after they have been used for an extended period of time or if they are exposed to a magnetic object. This results in noise or a loss of the treble sound.
- If the heads are magnetized, use a commercially available cassette-type head demagnetizer to demagnetize them.

Cleaning Discs



Dust, fingerprints or spit on the disc will result in noise or skipping. If the disc is dirty or if the CD player does not operate properly, use the following procedure to clean the disc:

- Hold the disc with the signal surface (the side opposite the labelled side) facing up, as shown in the diagram.
- Wipe the disc gently from the center towards the edge (in the direction of the arrow) with a soft cloth.

Do not clean discs with the following:

- Benzene, alcohol or other solvents
- Cleaner including an abrasive
- Sprays or cleaners designed for records
- Anti-static

NOTES

- Do not wipe discs in the direction opposite the arrow or in a circular motion as with regular records.
- The disc's signal surface is easily damaged, so do not wipe it with a hard cloth or rub it strongly.

15 SPECIFICATIONS

■ Pre-main amplifier (UPA-F07)

Rated output power:	45 W + 45 W (4 Ω / ohms, DIN)
Low frequency adjustment range:	100 Hz ±8 dB
High frequency adjustment range:	10 kHz ±8 dB
Audio input / output jacks:	CD input jacks, tape input/output jacks, tuner input jacks, MD/AUX input/output jacks, 6.3 mm headphones jack and phono input jacks
Power supply:	AC 230 V, 50 Hz
Power consumption:	120W
Maximum external dimensions:	270 (W) × 112 (H) × 327 (D) mm (10-5/8" × 4-13/32" × 12-7/8") (including feet, controls and terminals)
Weight:	5.1 kg (11 lbs. 4 oz)

■ Tuner (UTU-F07)

Reception frequency band:	FM: 87.50 MHZ – 108.00 MHZ AM: 522 kHz – 1611 kHz
Reception sensitivity:	FM: 1.5 μ/75 Ω/ohms AM: 20 μV
FM stereo separation:	35 dB (1 kHz)
Power supply:	AC 230 V, 50 Hz
Power consumption:	10 W
Maximum external dimensions:	270 (W) × 112 (H) × 294 (D) mm (10-5/8" × 4-13/32" × 11-37/64") (including feet, controls and terminals)
Weight:	2.7 kg (5 lbs. 15 oz)

■ CD player (UCD-F07)

Wow & flutter:	Below measurable limits (±0.001% W. peak)
Sampling frequency:	44.1 kHz
Optical source:	Semiconductor
Power supply:	AC 230 V, 50 Hz
Power consumption:	10 W
Maximum external dimensions:	270 (W) × 112 (H) × 294 (D) mm (10-5/8" × 4-13/32" × 11-37/64") (including feet, controls and terminals)
Weight:	3.1 kg (6 lbs. 13 oz)

■ Cassette deck (UDR-F07)

Type:	Horizontal 4-track 2-channel stereo auto reverse cassette deck
Heads:	1 hard permalloy recording/playback head 1 double-gap ferrite erasing head
Tape speed:	4.75 cm/s
Included circuits:	Dolby B and C NR, Dolby HX Pro
Usable tapes:	Normal, chrome and metal
Power supply:	AC 230 V, 50 Hz
Power consumption:	14 W
Maximum external dimensions:	270 (W) × 112 (H) × 302 (D) mm (10-6/8" × 4-13/32" × 11-29/32") (including feet, controls and terminals)
Weight:	3.7 kg (8 lbs. 3 oz)

■ Remote control unit (RC-807)

Remote control system:	Infrared pulse
Number of buttons:	47
Power supply:	Two DC 1.5V R6P/AA batteries
Maximum external dimensions:	64 (W) × 176 (H) × 18 (D) mm (2-1/2" × 6-15/16" × 23/32")
Weight:	130 g (including batteries) (Approx. 4.6 oz)

* Maximum dimensions include controls, jacks, and covers.
(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

■ Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

■ "DOLBY", the double-D symbol ⧈ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

16 TROUBLESHOOTING

Check the following once more before assuming there is a problem with the system.
1. Are connections proper?
2. Is the system being operated as explained in the operating instructions?
If the system does not seem to be operating properly, check as shown on the table below. If none of these checks apply to the problem, the system may be malfunctioning. Disconnect the power cord immediately and contact your store of purchase.

	Symptom	Cause	Countermeasure	Page
General	Power does not turn on when power switch is pressed.	• Power cord is not plugged into a power outlet.	• Plug the power cord securely into an outlet.	5
	No sound is produced from the speakers.	• VOLUME control is turned down. • Headphones are connected. • Speaker cords are not securely connected.	• Set the control to an appropriate position. • Disconnect the headphones. • Connect securely.	6 6 5
	No treble sound is produced, or the position of the instruments is unclear.	• Speaker polarities (⊕ and ⊖) are inverted.	• Connect the speaker cords properly.	5
	A source other than the desired one is heard.	• Function is not properly set.	• Set the desired function using the FUNCTION button.	6
Cassette deck	Recording does not start when REC/REC MUTE button is pressed.	• No cassette tape is loaded. • Accidental erasure protection tabs are broken off.	• Load a cassette tape. • Cover the tab holes with cellophane tape.	16 16
	Sound is broken or no sound is produced during recording and playback.	• Heads are dirty. • Cassette tape is defective.	• Clean the heads. • Replace the cassette tape.	25 –
	Humming sound is heard while playing cassette tapes.	• Noise from a TV. (Noise may be produced by some types of TVs.)	• Move the TV away from the system. • Turn the TV off.	4 –
	Wow (shaky sound) is heavy during recording or playback.	• Capstans or pinch rollers are dirty.	• Clean them.	25
Tuner	Hissing sound is heard in FM programs.	• Antenna direction is poor. • Signals from the broadcast station are weak.	• Change the direction of the antenna. • Install an outdoor antenna.	4 4
	Hissing sound is heard in AM programs.	• Noise from a TV or interference from a broadcast station.	• Turn the TV off. • Change the direction of the loop antenna. • Install an outdoor antenna.	– – 4
	Humming sound is heard in AM programs.	• Signals on the power cord are being modulated by the power source frequency	• Insert the power cord in the opposite direction. • Install an outdoor antenna.	– 4
CD player	Total number of tracks not displayed when disc is loaded.	• Disc is loaded upside-down. • Disc is dirty. • Disc is not of the specified type.	• Reload the disc. • Clean the disc. • Replace with a disc of the specified type.	20 25 –
	Nothing happens when operating buttons are pressed. Disc stops in the middle of a track and will not play properly.	• Disc is loaded upside-down. • Foreign object on disc tray. • Disc is dirty. • Disc is scratched.	• Reload the disc. • Remove the disc and the foreign object. • Clean the disc. • Replace with an unscratched disc.	20 20 25 –
	Sound is broken.	• Dirt, fingerprints, spittle, etc. on disc. • Disc is scratched. • Player is in an unstable place and vibrates strongly	• Clean the disc. • Replace with an unscratched disc. • Place the player in a stable place with no vibrations.	25 – –
	Humming sound is heard when disc is played.	• Signals on the power cord are being modulated by the power source frequency.	• Insert the power cord in the opposite direction.	–

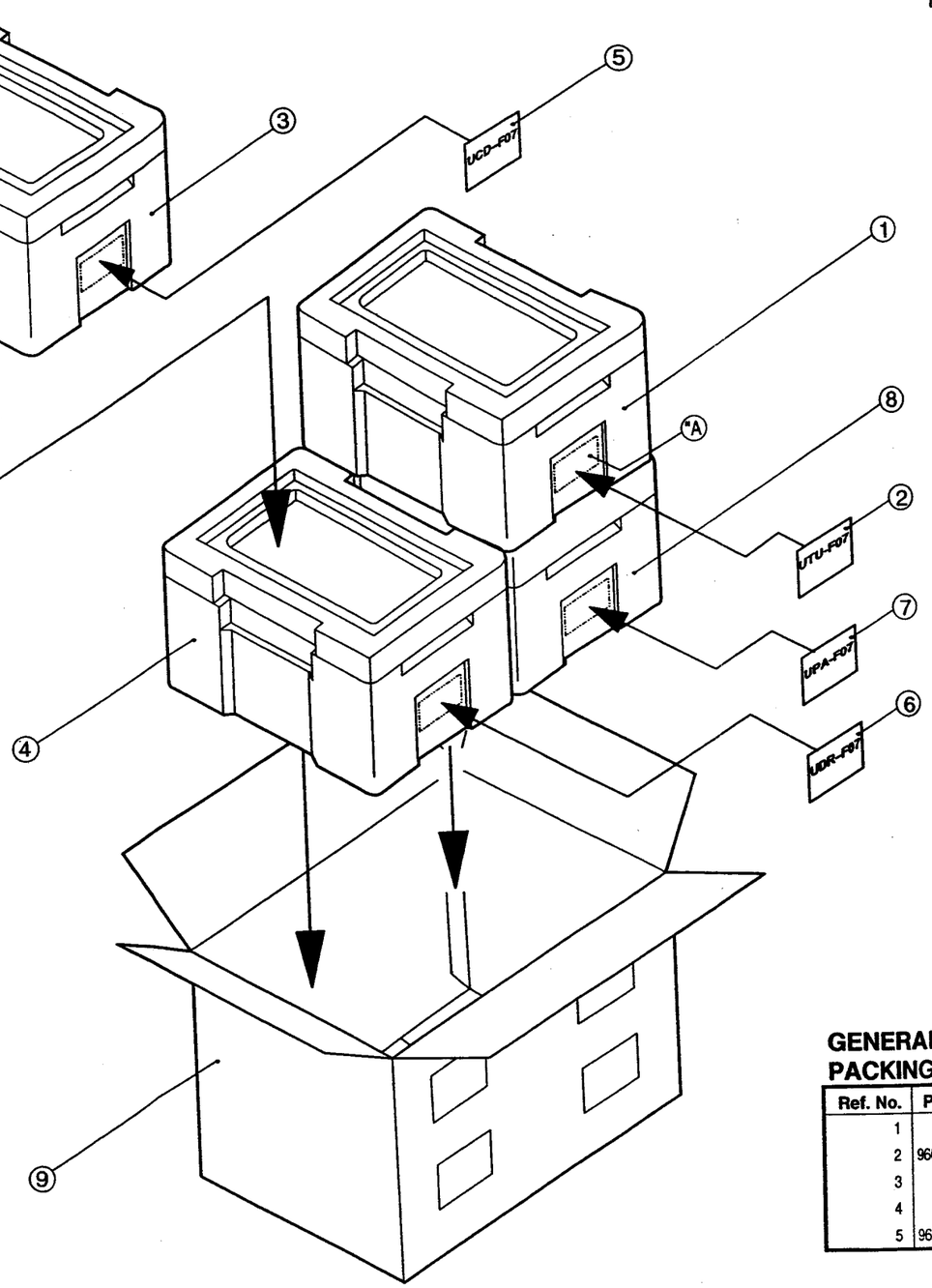
- **Protector circuit**
The UPA-F07 is equipped with a high speed protector circuit.
This circuit protects internal parts from being damaged by strong currents generated in the set should the set be operated when the speaker terminals are incompletely connected or short-circuited.
If this protector circuit is activated, a relay sound is produced, the output to the speakers is interrupted, and the function and power LEDs flash to indicate that there is a problem. If this should happen, unplug the power cord, check the speaker connections, then plug in the power cord and turn the power back on. After several seconds, a relay sound is heard and the set starts operating properly.

- The set may not operate properly due to such external influences as lightning or static electricity. If this happens, either turn off the power with the pre-main amplifier's SYSTEM POWER switch or unplug the power cord, wait approximately 5 seconds, then plug the power cord back in.

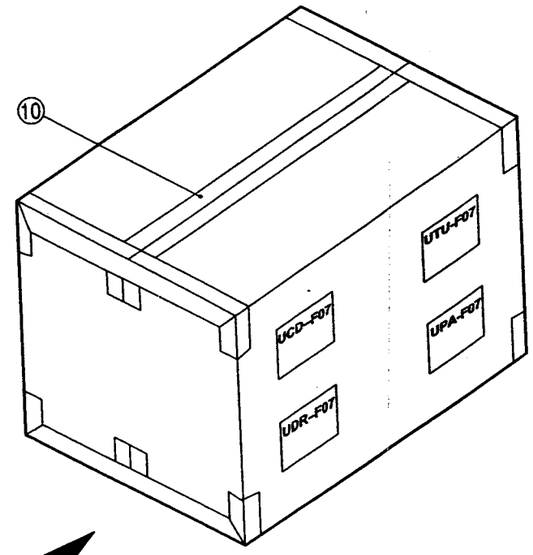
GENERAL SECTION

PACKING VIEW

OVER ALL



This packing view is only for Asia model.

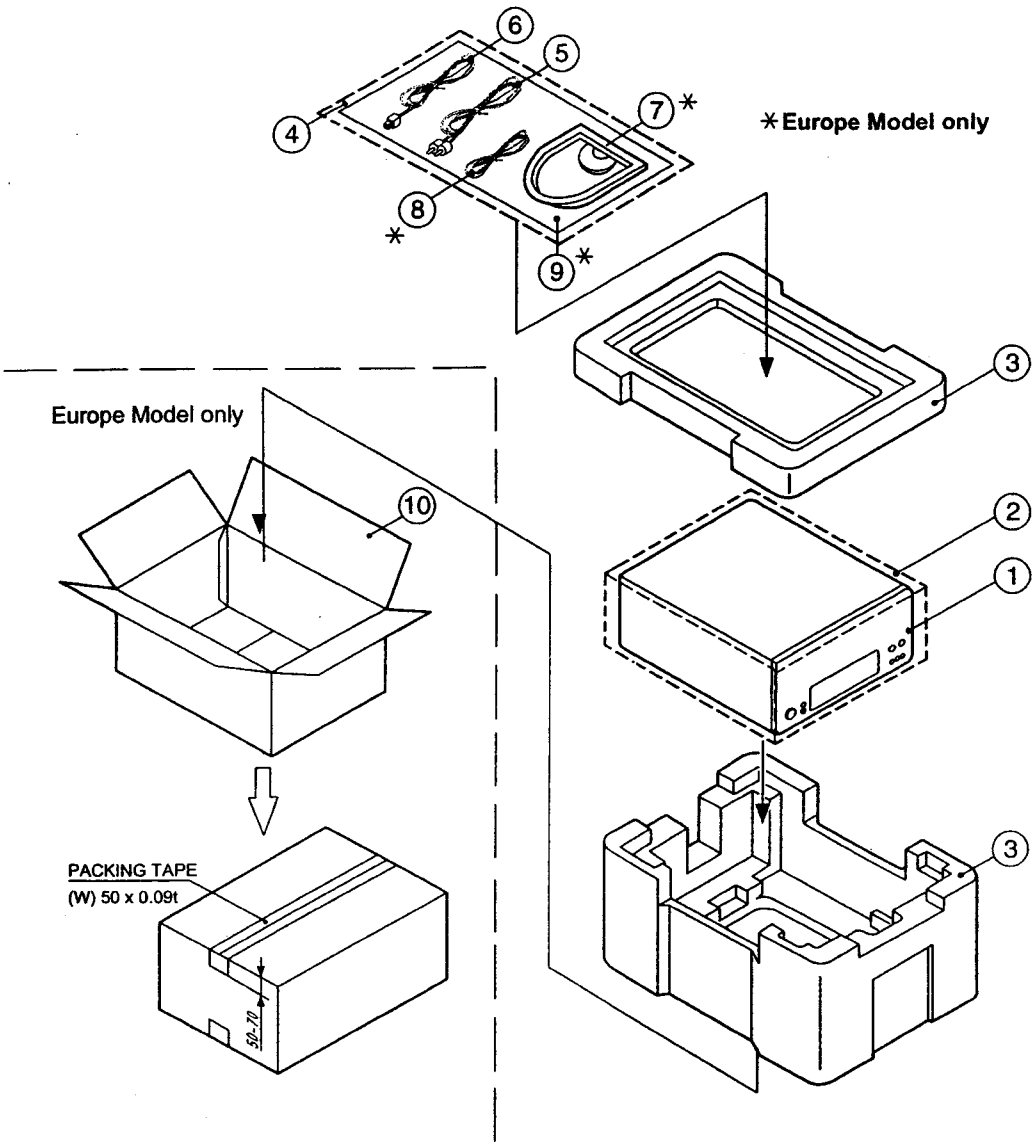


GENERAL SECTION
PACKING & ACCESSORIES PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	—	Tuner unit	UTU-F07	1s
2	960 0030 332	Model label	for UTU-F07	1
3	—	CD Player unit	UCD-F07	1s
4	—	Cassette deck unit	UDR-F07	1s
5	960 0030 329	Model label	for UCD-F07	1

Ref No.	Part No.	Part Name	Remarks	Q'ty
6	960 0030 316	Model label	for UDR-F07	1
7	960 0030 303	Model label	for UPA-F07	1
8	—	Amp. unit	UPA-F07	1
9	960 0036 705	Carton case	602702[illegible]001	1
10	—	Scotch tape	for seal	1

TUNER SECTION (UTU-F07)



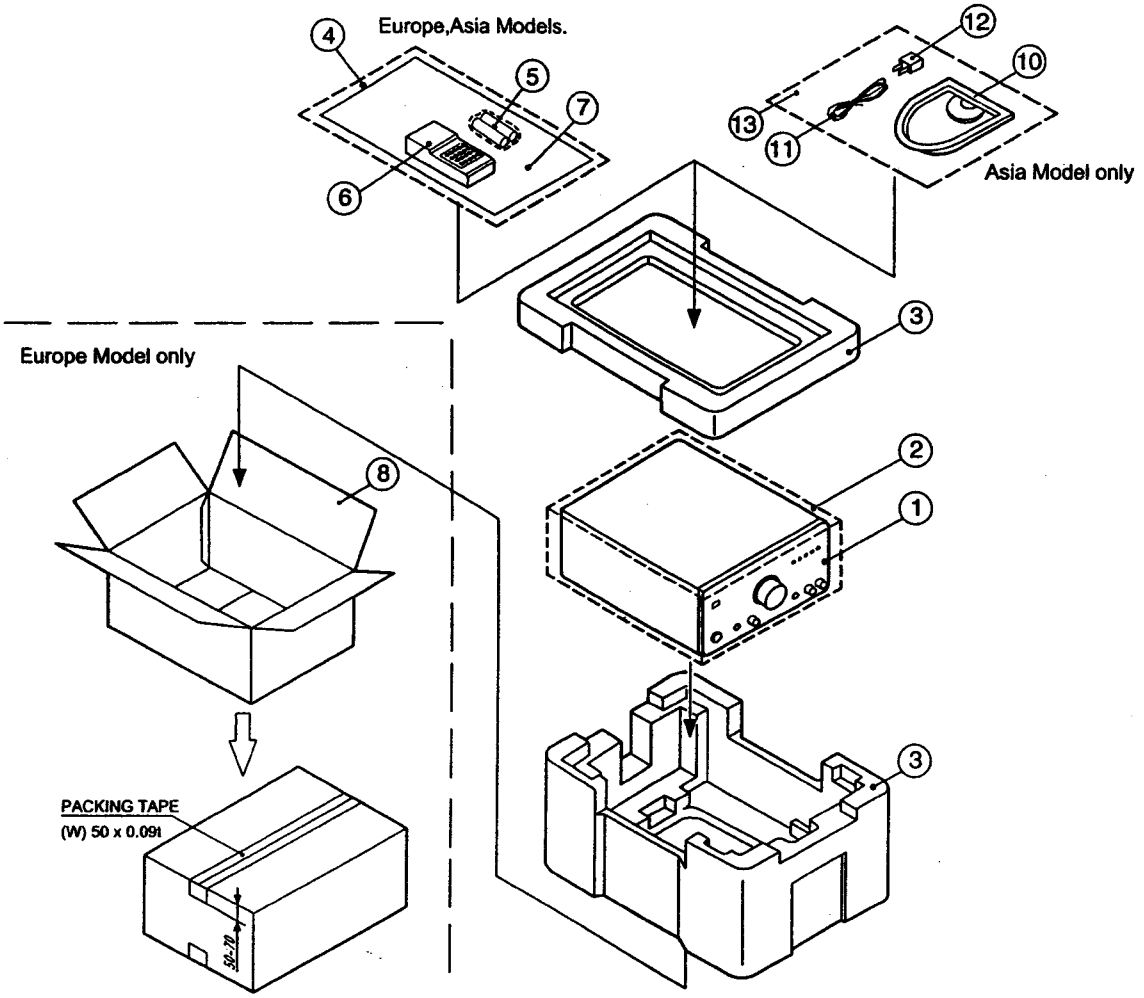
TUNER SECTION (UTU-F07)
PACKING & ACCESSORIES PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	—	Tuner unit Ass'y (UTU-F07)		1
2	505 8092 023	Poly bag (480x500)	for set	1
◉ 3	960 0004 009	Cushion Ass'y	623002003401	1
4	505 0038 030	Poly bag (230x340)	for accessories	1
			Europe model only	
4	—	Poly bag (90x230)	for accessories	1
			Asia model only	
5	960 0031 108	2 P pin cord (RD-WT L=1000)	L06321020000	1
6	960 0006 104	System cord	L06321021004	1
7	960 0004 106	AM loop antenna	E60100005000	1
			Europe model only	

Ref No.	Part No.	Part Name	Remarks	Q'ty
8	960 0004 203	FM antenna wire	E6050C003000	1
			Europe model only	
9	960 0034 008	Operating instructions	57002004001	1
			Europe model only	
◉ 10	960 0033 902	Carton case	60000995003	1
			Europe model only	
★11	—	Poly bag	63300029901	1
			U.K model only	
★12	—	Control label	55002002007	2
			Europe model only	
★12	—	Control label	55002002009	2
			U.K model only	

GENERAL SECTION

PRE-MAIN AMP. SECTION (UPA-F07)

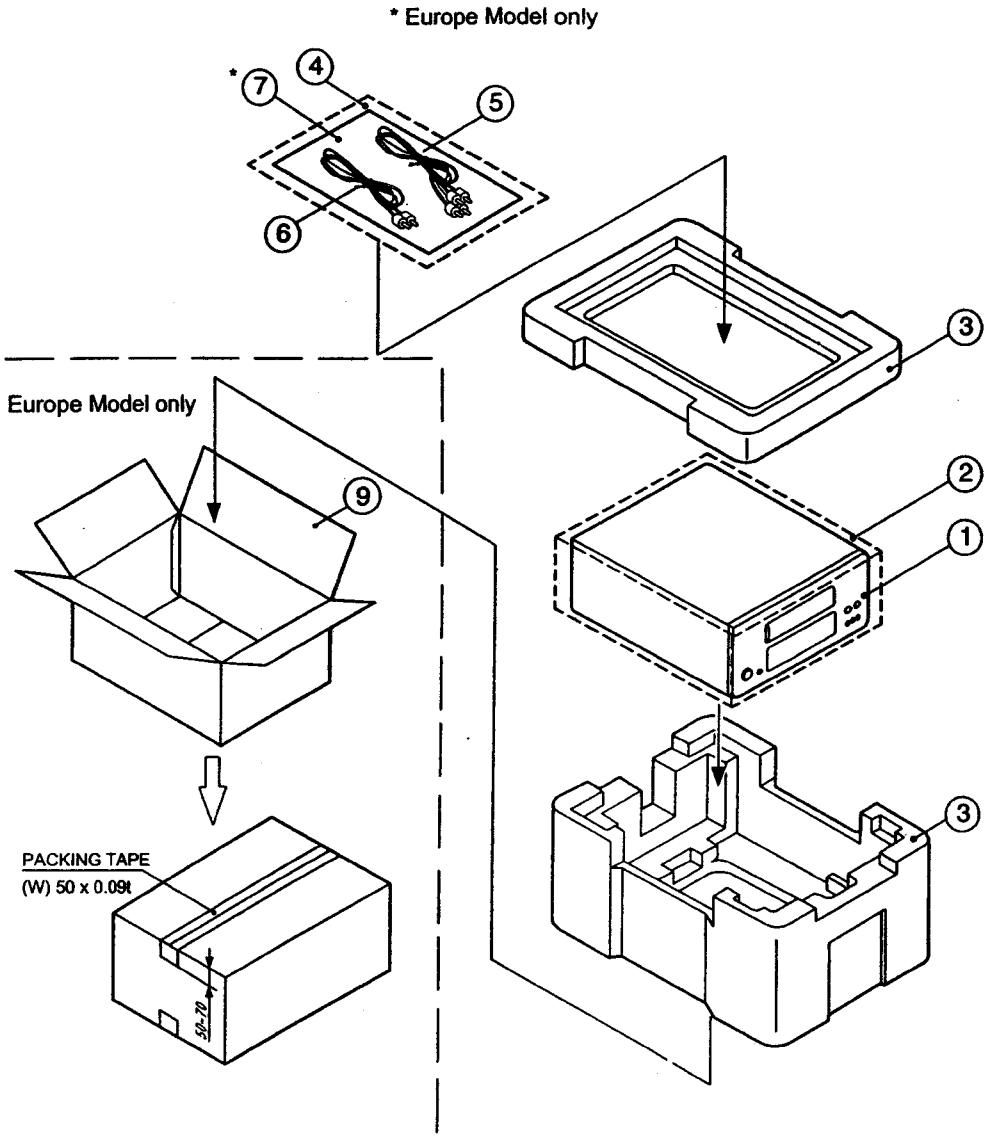


PRE-MAIN AMP SECTION (UPA-F07)
PACKING & ACCESSORIES PARTS LIST

	Ref. No.	Part No.	Part Name	Remarks	Q'ty
	1	—	Amp. unit Ass'y (UPA-F07)		1s
	2	505 8092 023	Poly bag (480x500)	for set	1
◉	3	960 0004 009	Cushion Ass'y	623002003401	1
	4	505 0099 024	Poly bag (260x380)	for accessories	1
				633700024001	
	5	—	Batteries	R6P,AA type	2
◉	6	960 0033 300	Remote control Ass'y RC807	830802001002	1
				Europe model	
◉	6	960 0006 007	Remote control Ass'y RC806	830802001001	1
				Asia model	
	7	960 0032 819	Operating instructions	570702002008	1
				Europe model	
	7	960 0032 822	Operating instructions	570702002009	1
				U.K.model	
	7	960 0032 806	Operating instructions	570702002003	1
				Asia model	
◉	8	960 0032 602	Carton case	600700995001	1
				Europe model only	

Ref No.	Part No.	Part Name	Remarks	Q'ty
★9	—	Poly bag	633700029901	1
			U.K.model only	
10	960 0004 106	AM loop antenna	E60100005000	1
			Asia model only	
11	960 0004 203	FM antenna wire	E60500003000	1
			Asia model only	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	—	Poly bag (210x300)	633000058001	1
			Asia model only	
★14	—	Control label	550702002005	2
			Europe model	
★14	—	Control label	550702002008	2
			U.K.model	
★14	—	Control label	550702002002	2
			Asia model	
★15	513 1381 004	Manufacture label	550702005006	1
			Asia model only	

CD PLAYER SECTION (UCD-F07)



CD PLAYER SECTION (UCD-F07)
PACKING & ACCESSORIES PARTS LIST

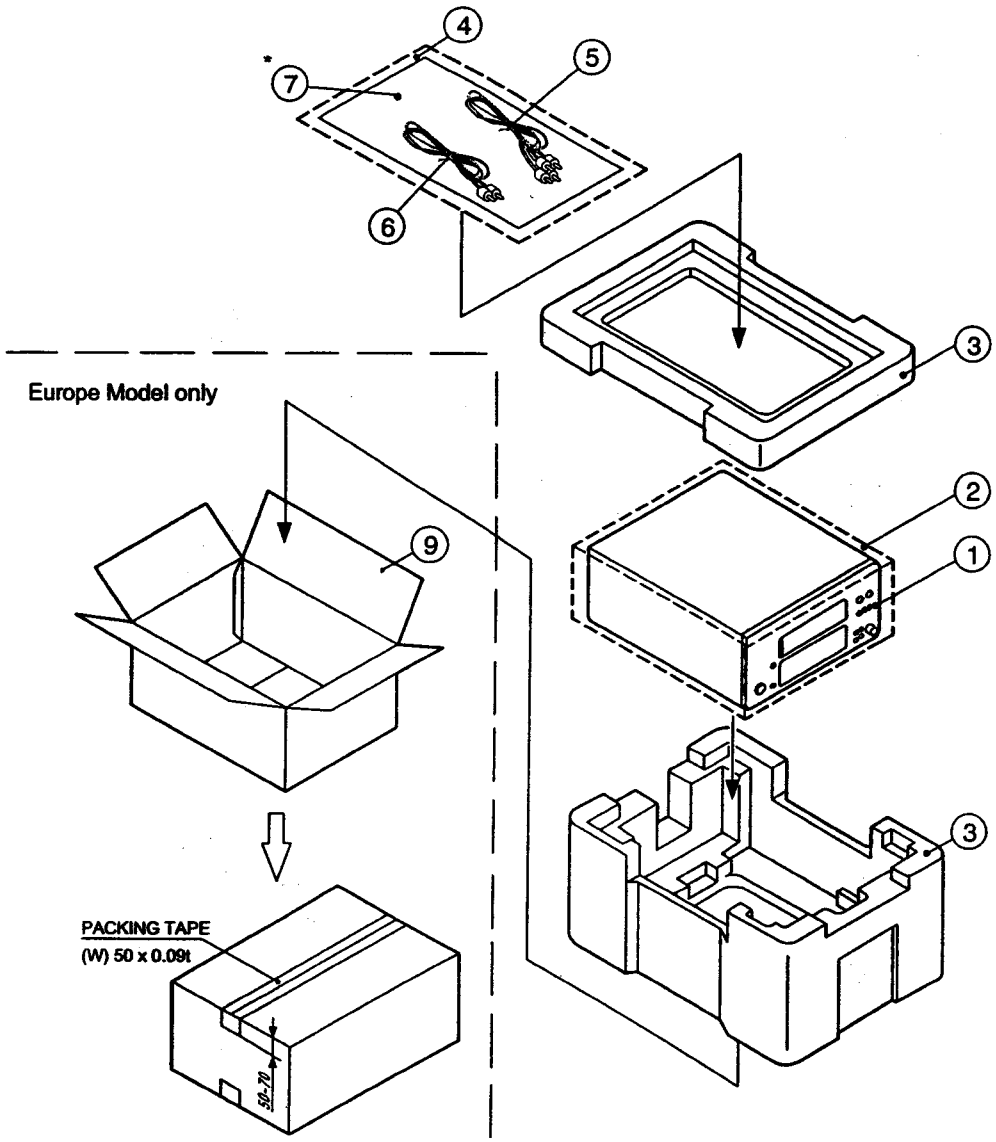
Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	—	CD unit Ass'y (UCD-F07)		1s
2	505 8092 023	Poly bag 480x500	for set	1
◉ 3	960 0004 009	Cushion Ass'y	623002003401	1
4	505 0099 024	Poly bag (260x380)	for accessories	1
			633700024001	
			Europe model only	
4	—	Poly bag (90x230)	633000038000	1
			Asia model only	
5	960 0031 108	2 P pin cord (RD-WT L=1000)	L06321020000	1
6	960 0006 104	System cord	L06321021004	1

Ref No.	Part No.	Part Name	Remarks	Q'ty
7	960 0035 117	Operating instructions	570702005004	1
			Europe model only	
★ 8	—	Control label	550702002001	2
			Europe model	
★ 8	—	Control label	550702002011	2
			U.K.model	
◉ 9	960 0035 706	Carton case	600700995005	1
			Europe model only	
★10	—	Poly bag	633700029901	1
			U.K.model only	

GENERAL SECTION

CASSETTE DECK SECTION (UDR-F07)

* Europe Model only



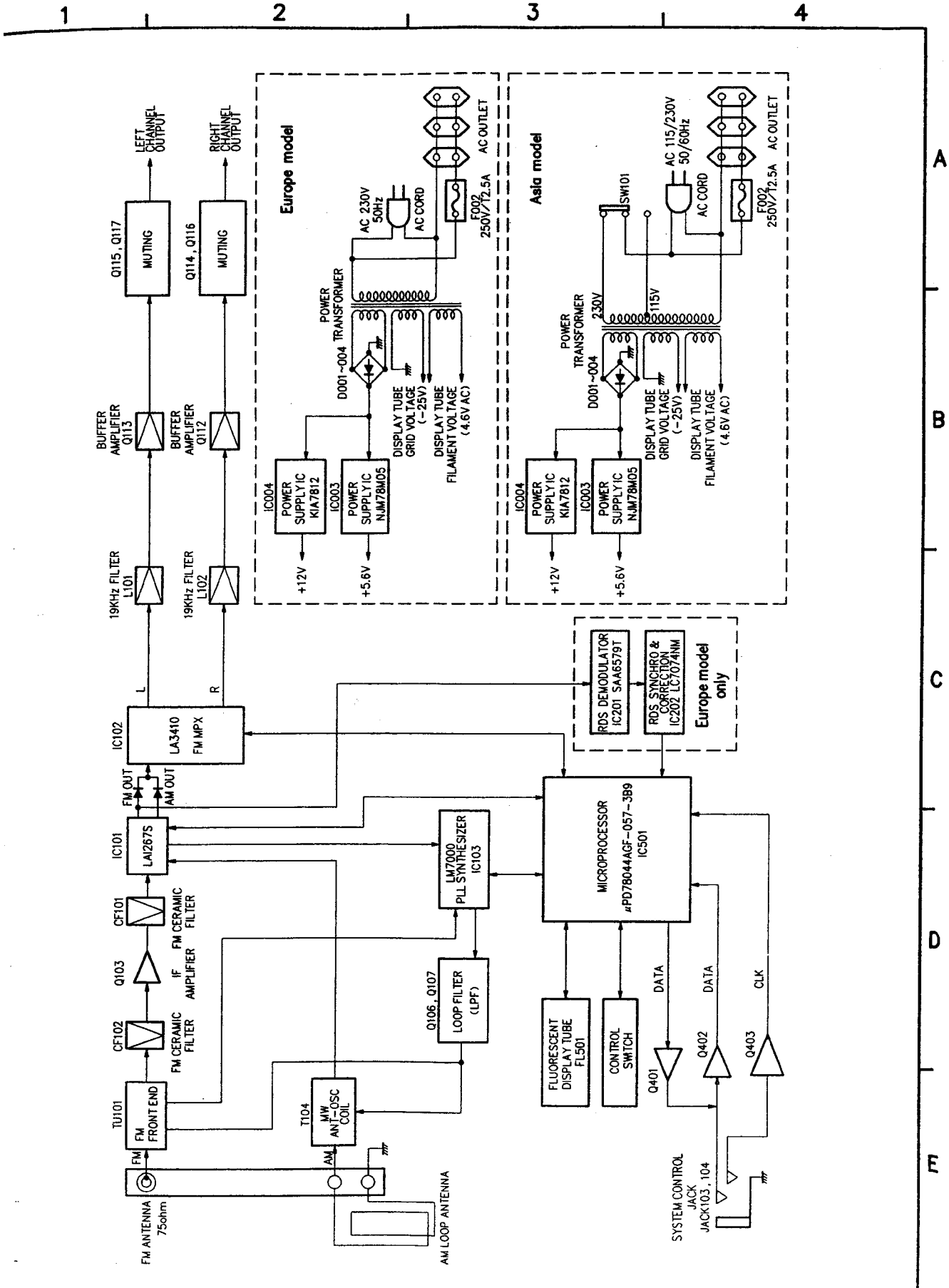
CASSETTE DECK SECTION (UDR-F07)
PACKING & ACCESSORIES PARTS LIST

	Ref. No.	Part No.	Part Name	Remarks	Q'ty
	1	—	Cassette deck unit (UDR-F07)		1s
	2	505 8092 023	Poly bag (480x500)	for set	1
◉	3	960 0004 009	Cushion Ass'y	623002003401	1
	4	505 0099 024	Poly bag (260X380)	for accessories	1
				Europe model only	
	4	—	Poly bag (90x230)	633000038000	1
				Asia model only	
	5	960 0031 108	2 P pin cord (RD-WT L=1000)	Red-White L=1000	2
				L06321020000	
	6	960 0006 104	System cord	L06321021004	1
	7	960 0036 200	Operating instructions	570702003001	1
				Europe model only	

	Ref No.	Part No.	Part Name	Remarks	Q'ty
	★8	960 0012 907	Pad	624002000501	1
◉	9	960 0036 103	Carton case	600700995002	1
				Europe model	
	★10	—	Poly bag	633700029901	1
				U.K.model only	
	★11	—	Control label	550702002006	2
				Europe model	
	★11	—	Control label	550702002010	2
				U.K.model	

BLOCK DIAGRAM

TUNER SECTION



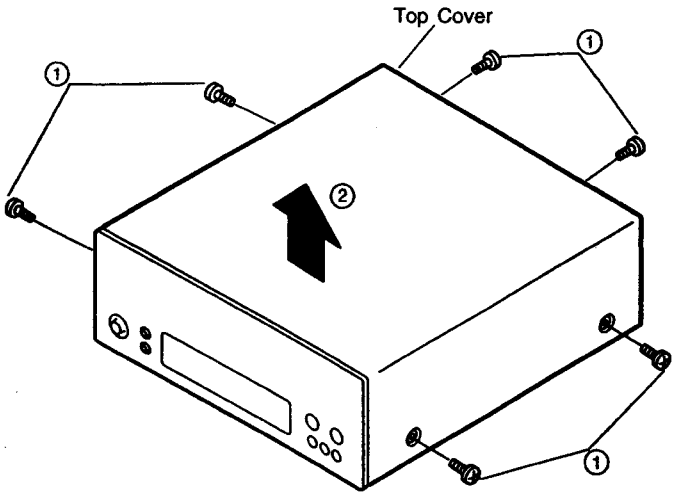
TUNER SECTION

DISASSEMBLY PROCEDURES

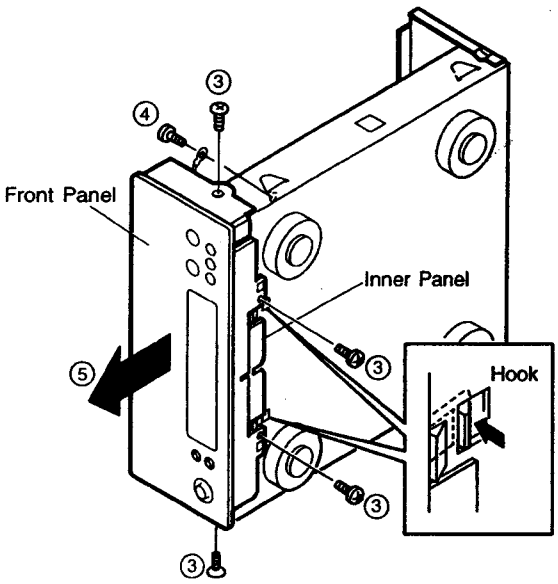
(Assembly is performed in the reverse order.)

1. Top Cover and Front Panel

① Remove 6 screws mounting on the Top Cover.
② Detach the Top Cover in the arrow direction.

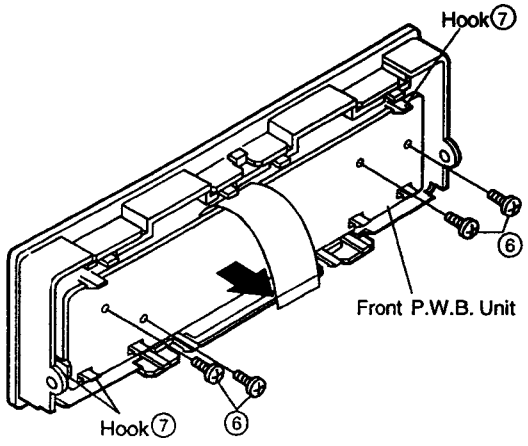


③ Remove 2 each screws fastening the Front Panel on the bottom and both sides.
④ Remove a screw attached the wire on the chassis.
⑤ While releasing 2 hooks of inner panel from the chassis, pull toward arrow direction and detach the Front Panel and the Inner Panel as a whole.



2. Front P.W.B. Unit

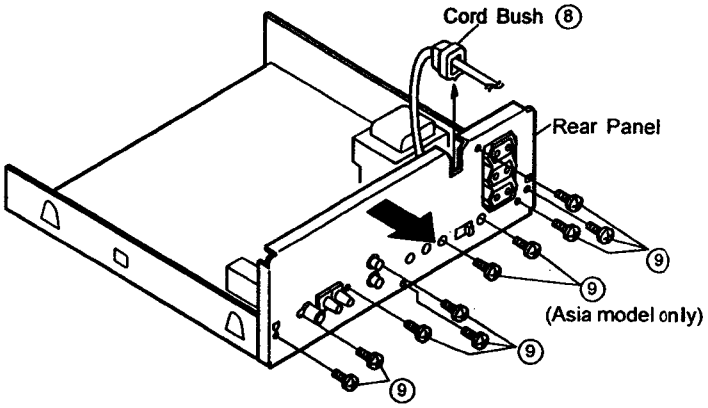
⑥ Remove 4 screws fastening the Front P.W.B. Unit.
⑦ Release 7 hooks and detach the Front P.W.B. Unit in the arrow direction.



3. Rear Panel and Main P.W.B. Unit

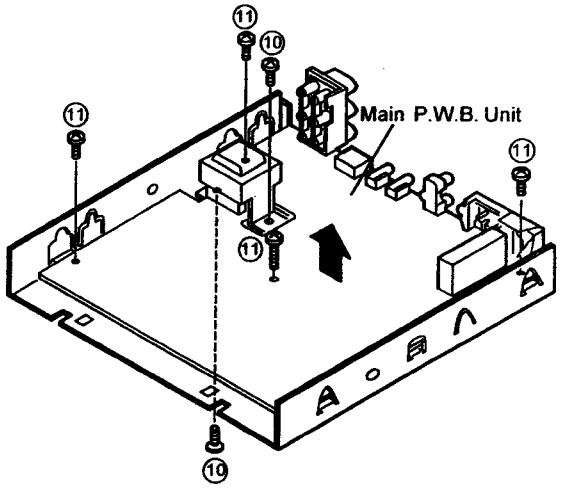
⑧ Remove the Cord Bush from the Rear Panel.

⑨ Remove 8 screws (Europe model) / 10 screws (Asia model) fixing the Rear Panel, then detach the Rear Panel in the arrow direction.



⑩ Remove 2 screws mounting on the transformer.

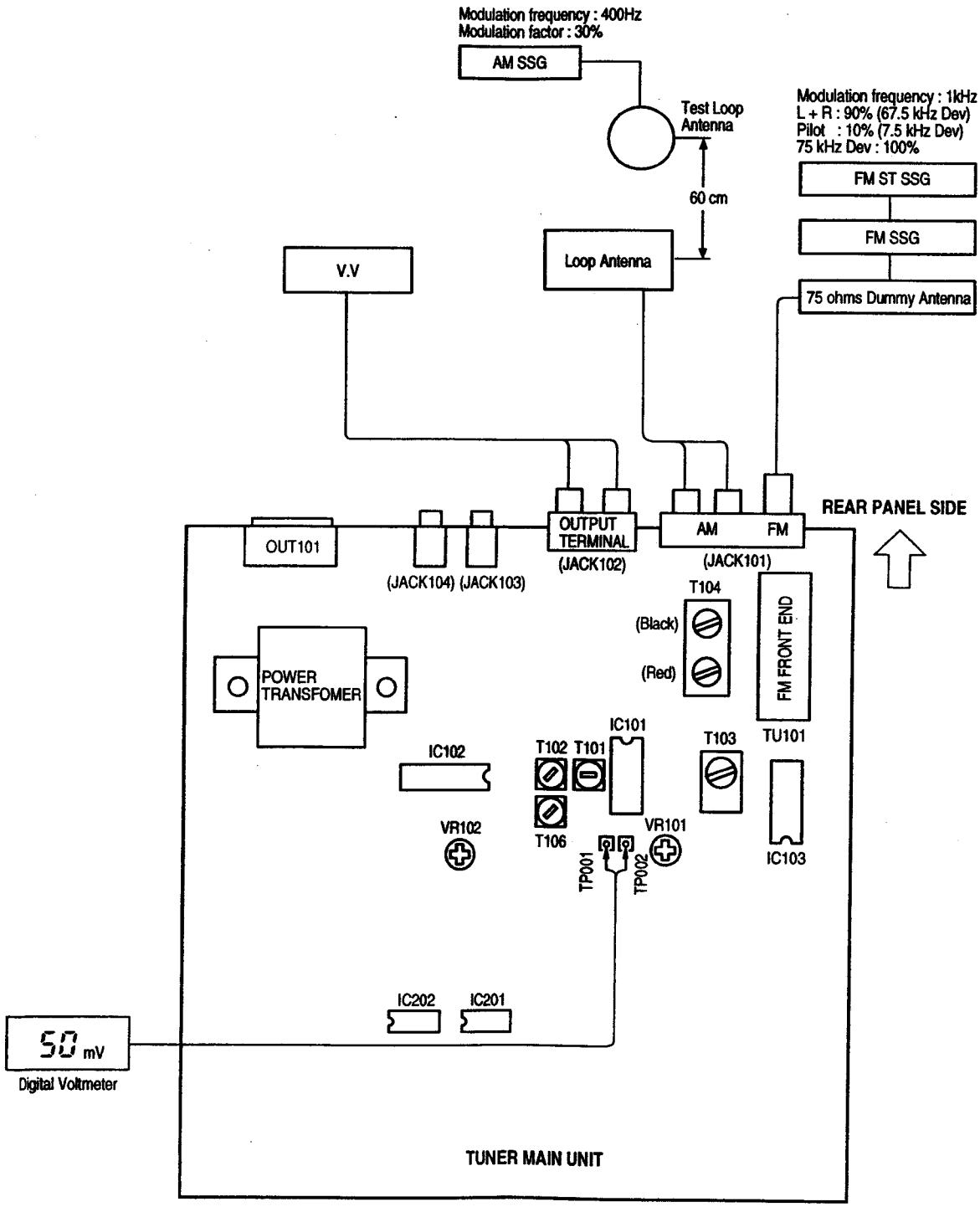
⑪ Remove 4 screws fastening the Main P.W.B. Unit, and detach the Main P.W.B. Unit in the arrow direction.



TUNER SECTION

ADJUSTMENTS

WIRING DIAGRAM



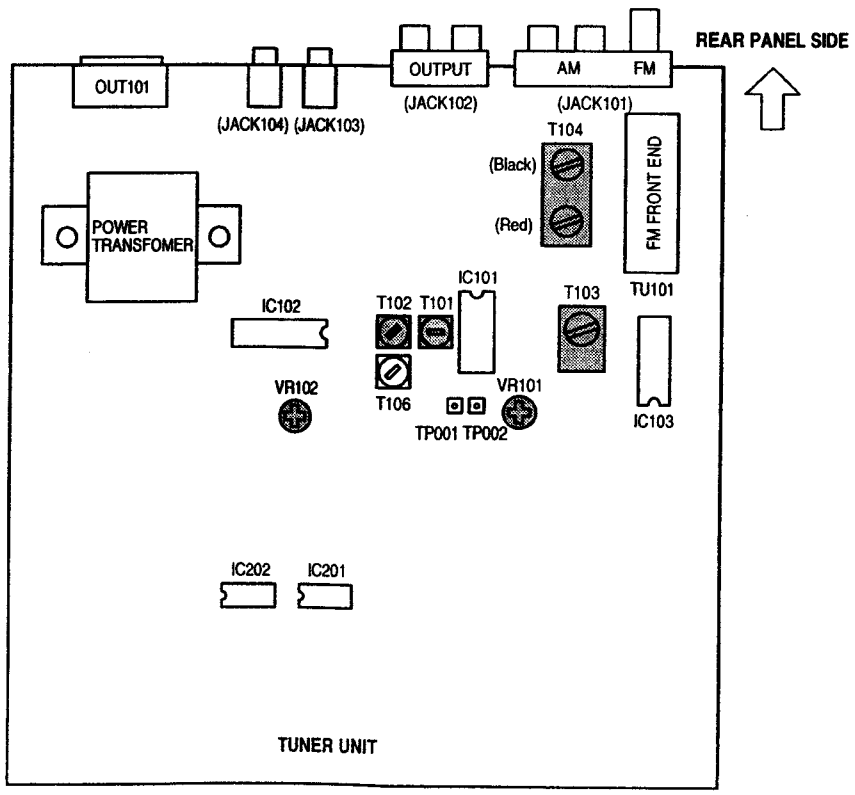
1. FM adjustment (BAND button: FM, FM MODE button: AUTO (STEREO)

Step	Adjustment item	Tuning point (channel setting)	Input					Output		Adjustment location	Setting value	Notes
			Measuring Instrument	Frequency	Input level	Modulation	Connection location	Measuring instrument	Connection location			
1	FM DC balance	98.00MHz	FM S.G.	98.00MHz	60dB μ	1kHz 75kHz DEV	FM antenna terminal	Digital volt meter	⊕ TP001 ⊖ TP002	T101	0±50mV	Perform with monaural modulation signal
2	Distortion	98.00MHz	FM S.G.	98.00MHz	60dB μ	1kHz 75kHz DEV	FM antenna terminal	Distortion factor meter	Output jack	T102	Minimum distortion	Perform with monaural modulation signal
3	Repeat Steps 1 and 2											
4	Auto stop level	98.00MHz	FM S.G.	98.00MHz	22dB μ	1kHz 75kHz DEV	FM antenna terminal	Check for the lighting of TUNED	Output jack	VR101	Input level 22dB μ±4dB	(Level at which TUNED lights up) Level at which the output is provided
5	Stereo separation	98.00MHz	FM stereo modulator FM S.G.	98.00MHz	60dB μ	1kHz L or R : 67.5kHz DEV Pilot ; 7.5kHz DEV	FM antenna terminal	VTVM Oscilloscope	Output jack	VR102	Minimum R.ch. Output	Perform with L.ch. Input of FM stereo modulator

2. AM adjustment (BAND button: AM)

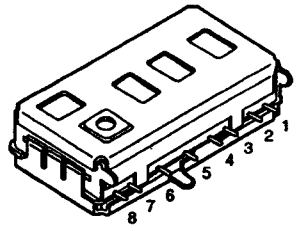
Step	Adjustment item	Tuning point (channel setting)	Input					Output		Adjustment location	Setting value	Notes
			Measuring Instrument	Frequency	Input level	Modulation	Connection location	Measuring instrument	Connection location			
1	IF	Clear frequency (without a broadcast)	AM IF sweep	—	Level at which AGC is not applied	—	AM antenna terminal	Oscilloscope	Output jack	T103	Waveform maximum and symmetry	
2	Band edge	522kHz	—	—	—	—	—	Digital voltmeter	⊕ R124 (10kohm) ⊖ G	T104 Black	1.2V±0.2v	
		1611kHz								—	Approx. 7.6v	No place to adjust
3	Tracking	603kHz	AM S.G.	603kHz	Level at which AGC is not applied	400Hz 30%	Loop antenna	VTVM	Output terminal	T104 Red	Maximum output	
4	Repeat Steps 2 and 3, and set the output to maximum.											

TUNER MAIN UNIT (Component Side)



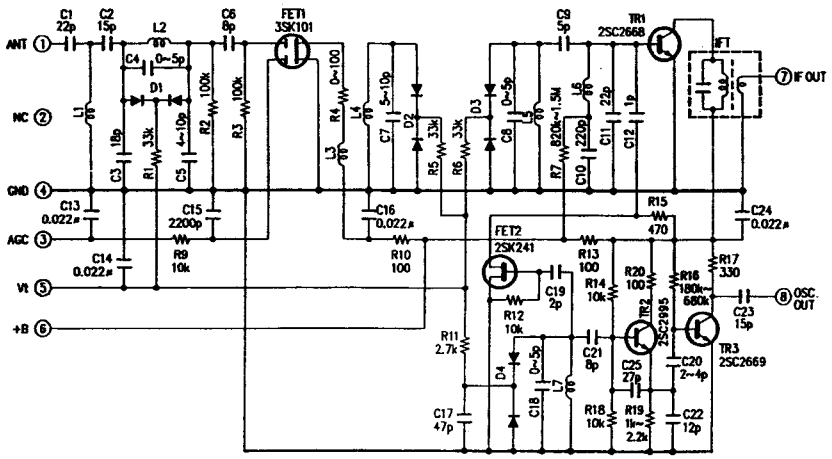
TUNER SECTION

Front End (TU101)
Part No.: 960 0037 319 Europe model

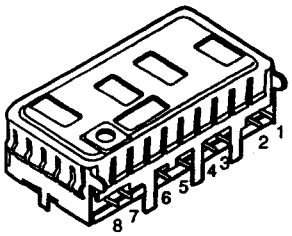


EXTERNAL TERMINALS
1. ANT
2. NC
3. AGC
4. GND
5. Vt
6. +B
7. IF OUT
8. OSC OUT

NOTES
1) TERMINAL NUMBER REFER TO OVERALL APPEARANCE
2) RECEIVING FREQUENCY 87.5 ~ 108 MHz
3) INPUT IMPEDANCE 75 ohms
4) OUTPUT IMPEDANCE 300 ohms
5) SUPPLY VOLTAGE +B 12 V
6) TUNING VOLTAGE Vt 1.6 ~ 8.0 V
7) AGC VOLTAGE 5V

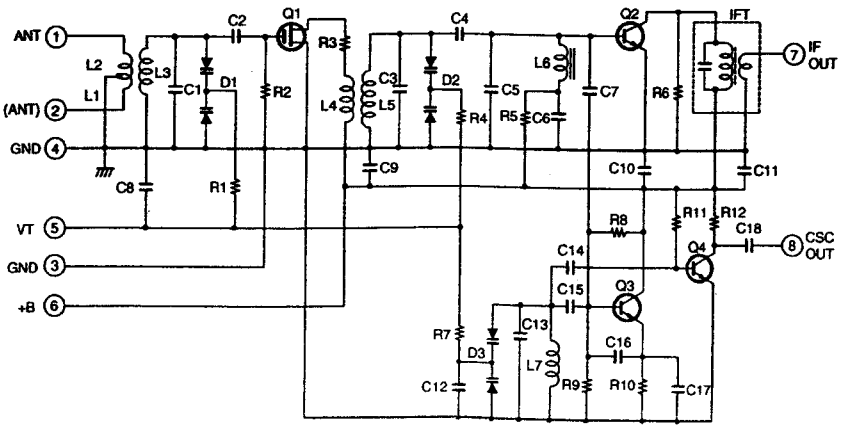


Front End (TU101)
Part No.: 960 0037 306 Asia model



EXTERNAL TERMINALS
1. ANT
2. OPEN
3. GND
4. GND
5. Vt
6. +B
7. IF OUT
8. OSC OUT

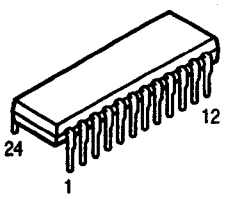
NOTES
1) TERMINAL NUMBER REFER TO OVERALL APPEARANCE
2) RECEIVING FREQUENCY 87.5 ~ 108 MHz
3) INPUT IMPEDANCE ① - ②: 300 ohms, ① - ④: 75 ohms

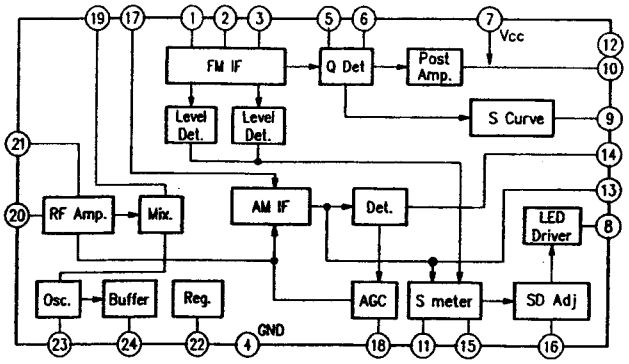


SEMICONDUCTORS

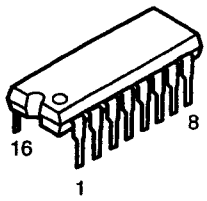
● IC's

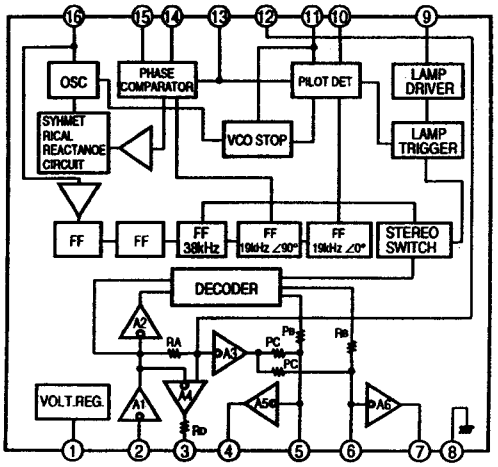
LA1267S (IC101)



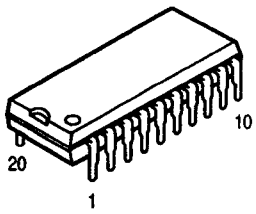


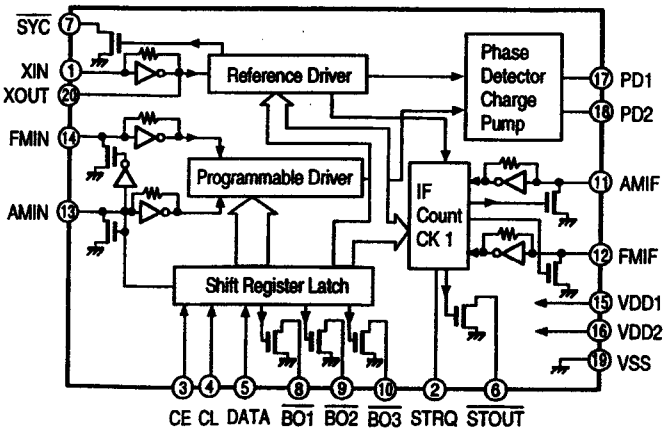
LA3410 (IC102)

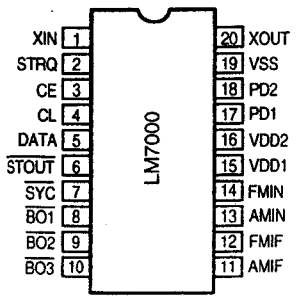




LM7000 (IC103)





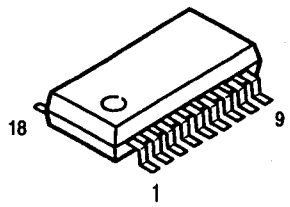


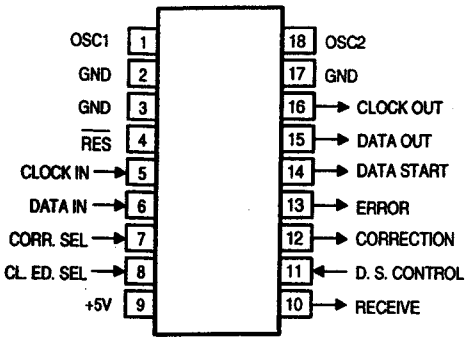
Pin Description

SYC	: Clock (400kHz) for the controller
XIN, XOUT	: X'tal oscillator (7.2MHz) with built-in feedback resistor
FM IN, AM IN	: Local oscillator signal input
CE, CL, DATA	: Data input
BO1, BO2, BO3	: Band data output, BO1 can be set as the time base output (8Hz)
STRQ	: IF counter request input
STOUT	: Auto research stop signal output
VDD1, VDD2, Vss	: Power supply (VDD2 is back-up power supply)
AMIF, FMIF	: IF signal input
PD1, PD2	: Charge pump output

TUNER SECTION

LC7074NM (IC202) ... Europe model only

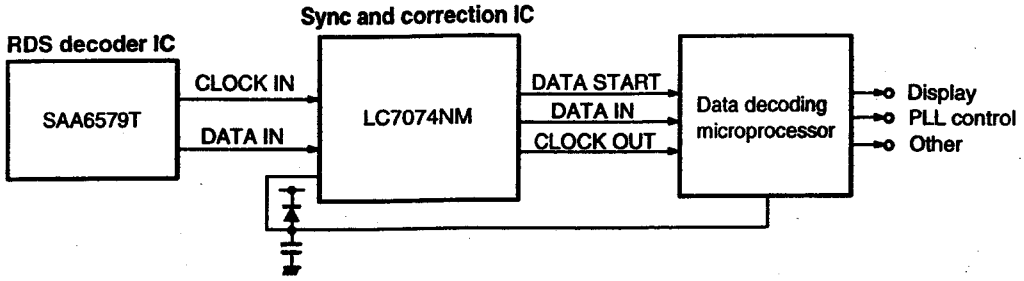




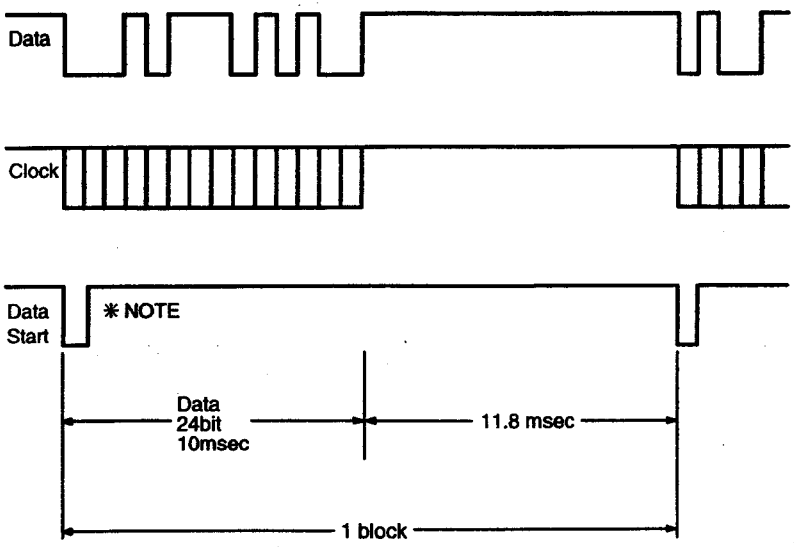
LC7074NM Terminal Function

Pin No.	Symbol	I/O	Function	Reset
1	OSC1	I	4 MHz ceramic oscillator connection.	
2	GND	—	Ground.	
3	GND	—	Ground.	
4	$\overline{\text{RES}}$	I	System reset input. Reset and restart is accomplished by inputting the low level for 4 or more clock cycles.	
5	CLOCK IN	I	RDS LA2230 series demodulation clock input.	H
6	DATA IN	I	RDS LA2230 series demodulation data input.	H
7	CORR. SEL	I	Error correction on/off selection input. Sets the IC to correct errors in the RDS demodulation data or to output the data without correction. When input is 0 : No corrections are made. When input is 1 : Corrections are executed.	H
8	CL. ED. SEL	I	Serial data clock polarity selection input. When input is 0 : Serial data output is enabled at the rise of the output clock. (Serial data output changes at the fall of the output clock.) When input is 1 : Serial data output is enabled at the fall of the output clock. (Serial data output changes at the rise of the output clock.) Note : Set at the time of $\overline{\text{RES}}$ input.	H
9	+5V	—	+5V power supply.	
10	RECEIVE	O	Output during RDS data reception. After the completion of sync detection, there is a low-level, output while the serial data is being output. There is a high-level output at other times. Open drain output.	H
11	D.S. CONTROL	I	Block data start signal control input. When input is 0 : Data start signal is output for all blocks. When input is 1 : Data start signal is output for only the second block.	H
12	CORRECTION	O	Output with or without error correction. There is a low-level output when the output data of the serial data output have been corrected or when correction is not possible. There is a high-level output when correction has not been applied. Open drain output.	H
13	ERROR	O	Presence of error output. There is a low-level output when the output data of the serial data output has an error and correction is not possible. There is a high-level output when there is no error or when the error has been corrected. Open drain output.	H
14	DATA START	O	Block data start singal of the serial data output. Output with pull-up resistor.	H
15	DATA OUT	O	Data output of the serial data output. Output with pull-up resistor.	H
16	CLOCK OUT	O	Clock output of the serial data output. Output with pull-up resistor.	H
17	GND	—	Ground.	
18	OSC2	O	4 MHz ceramic oscillator connection.	

Structure of the RDS Data Processing System



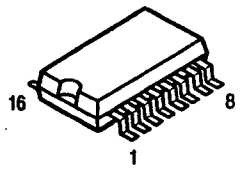
Serial Data Output Timing Chart

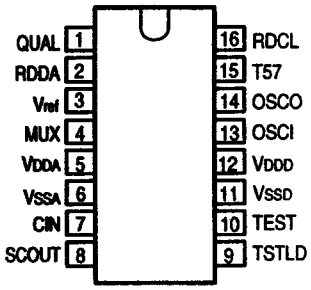


NOTE: Using the D.S. CONTROL input, only the second block among the entire 4 blocks of RDS data can be switched between the data start output and the total blocks' data start output.

TUNER SECTION

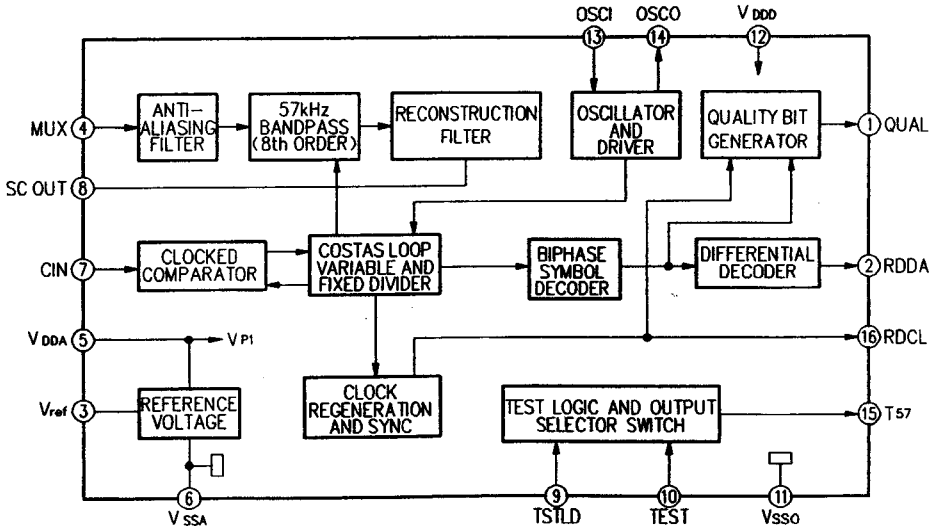
SAA6579T (IC201) ... Europe model only



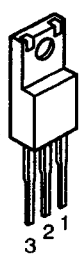


SAA6579T Terminal Function

Pin No.	Symbol	Description
1	QUAL	Quality indication output.
2	RDDA	RDS data output.
3	Vref	Reference voltage output (0.5 VDDA).
4	MUX	Multiplex signal input.
5	VDDA	+5V supply voltage for analog part.
6	VSSA	Ground for analog part (0V).
7	CIN	Subcarrier input to comparator.
8	SCOUT	Subcarrier ouput of reconstruction filter.
9	TSTLD	Test control.
10	TEST	Test enable input.
11	VSSD	Ground for digital part (0V).
12	VDDD	+5V supply voltage for digital part.
13	OSCI	Oscillator input.
14	OSCO	Oscillator output.
15	T57	57kHz clock signal output.
16	RDCL	RDS clock output.



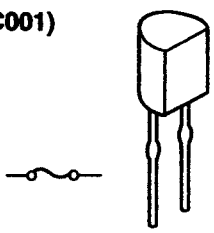
NJM7805FA
(IC003)
KIA7812FA
(IC004)



1: Output
2: GND
3: Input

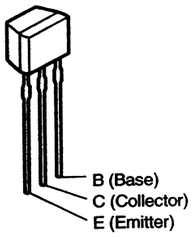
● IC PROTECTOR

ICP-N15 (IC001)

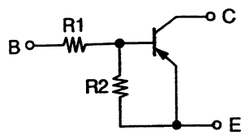


● TRANSISTORS

DTA114ES (PNP)
DTC144ES (NPN)
DTC343TS (NPN)

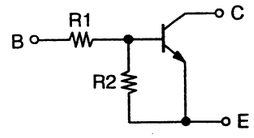


PNP Type
DTA ES Series



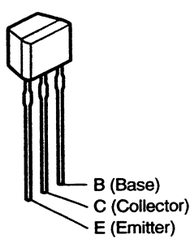
	R1	R2
DTA114ES	10 kohm	10 kohm

NPN Type
DTC ES/TS Series

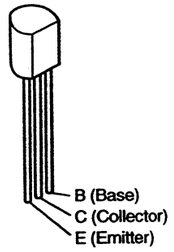


	R1	R2
DTC144ES	47 kohm	47 kohm
DTC343TS	4.7 kohm	—

2SA933S (S)
2SC1740S (R)

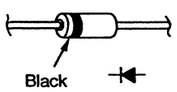


KSA916 (Y)
KSC1845 (F)
KTC3194 (O)

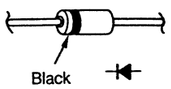


● DIODES

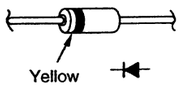
1N4002A



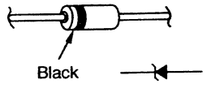
1SS131



1SS133

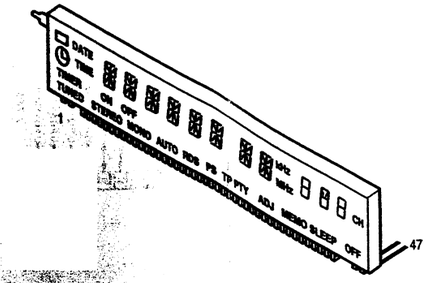


MTZJ6.2B
MTZJ8.2B
MTZJ27B



● FLUORESCENT DISPLAY TUBE 11BT127GK (FL501)

(Part No.: 960 0007 103)



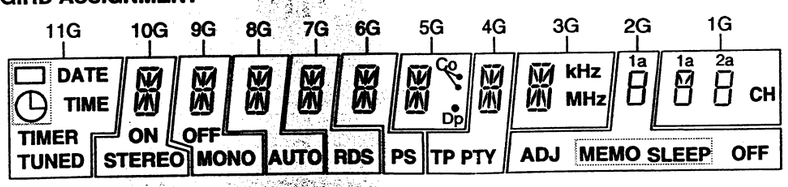
PIN CONNECTION (TOP01)

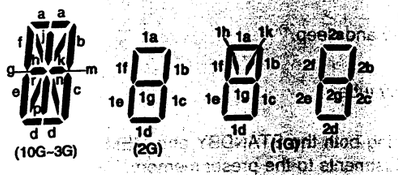
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Connection	F1	F1	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	NC	NC	NC	NC	NC	NC	NC	NC	NC

Pin No.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Connection	NC	NC	NC	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F2	F2

NOTE
1) Fl and F2: ..... Filaments
2) NP: ..... No pin
3) NC: ..... No connection
4) 1G through 11G: ..... Gird

GIRD ASSIGNMENT





ILLUMINATION COLORS
Reddish orange ..... portion of above pattern
(Rsh. O x = 0.645, y = 0.355)
Green (G. x = 0.235, y = 0.405)..... Other portions

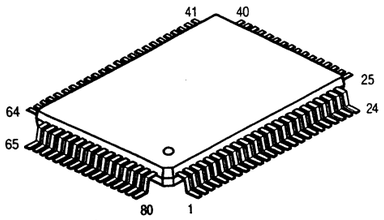
ANODE CONNECTION

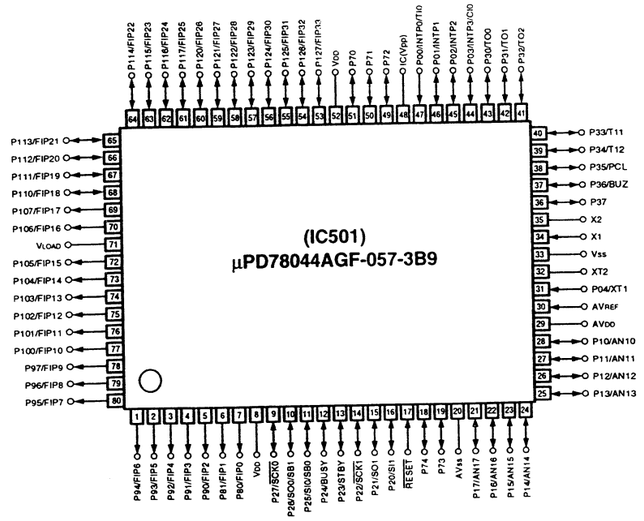
	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1		a	a	a	a	a	a	a	a	1a	1a
P2	DATE	b	b	b	b	b	b	b	b	1b	1b
P3		c	c	c	c	c	c	c	c	1c	1c
P4	TIME	d	d	d	d	d	d	d	d	1d	1d
P5	TIMER	e	e	e	e	e	e	e	e	1e	1e
P6	TUNED	f	f	f	f	f	f	f	f	1f	1f
P7	—	g	g	g	g	g	g	g	g	1g	1g
P8	—	h	h	h	h	h	h	h	h	ADJ	1h, 1k
P9	—	j	j	j	j	j	j	j	j	MEMO	2a
P10	—	k	k	k	k	k	k	k	k	SLEEP	2b
P11	—	m	m	m	m	m	m	m	m	OFF	2c
P12	—	n	n	n	n	n	n	n	n	—	2d
P13	—	p	p	p	p	p	p	p	p	—	2e
P14	—	r	r	r	r	r	r	r	r	—	2f
P15	—	ON	OFF	AUTO	RDS	PS	col	TP	kHz	—	2g
P16	—	STEREO	MONO	—	—	—	Dp	PTY	MHz	—	CH

TUNER SECTION

MICROPROCESSOR DOCUMENTATION

μPD78044AGF-057-3B9 : Part No. 960 0007 006
(IC501)





1. Overview

The functions of this microprocessor comprise the following three types.

a. Tuner functions

- Control operations required for receiving FM and AM broadcasts.

b. Timer functions

- These functions count the clock of the 24-hour display.
- These functions perform two types of timer operations, "everyday and sleep."

c. Display functions

- These functions output the drive signals of the fluorescent display tube.

NOTE1 Plugging the power cord into a power outlet while depressing both the STANDBY and MEMORY buttons will automatically register the frequencies used for tracking adjustments to the preset memory. These frequencies can be used for adjustments and other purposes.

	P1	P2	P3	P4	P5	P6	P7	P8	—	—
AM (kHz)	522	603	846	999	1098	1404	1512	1611		
	P11	P12	P13	P14	P15	—	—	—	—	—
FM (MHz)	87.50	89.00	98.00	100.10	108.00					

※ P9, P19 through P30 are AM 522 kHz, and P10, P16 through P18 are FM 87.50 MHz.

NOTE2 Plugging the power cord into a power outlet while depressing both the MEMORY and BAND buttons will initialize all settings including the current time and the contents of the timers and preset memory.

2. Receiving Band Table

Band	Receiving frequency	Local oscillator frequency	IF	Frequency division ratio	Comparison frequency	Step frequency	Other
FM	87.50 ~ 108.00MHz	98.20 ~ 118.70MHz	10.7MHz	1	25kHz	50kHz	
AM	522 ~ 1611kHz	972 ~ 2061kHz	450kHz	—	9kHz	9kHz	

3. Signals sent to the LM7000 Programmable Divider

a. Signals to the programmable divider are sent from 3 sources: CE OUT, CLOCK OUT, and DATA OUT.

b. The programmable divider takes in DATA at CLOCK ⌐, when CE equals 1.

c. The data is a 24-bit serial signal which is taken in to the programmable divider from the LSB.
(At the AM setting, D0 through D3 are ignored, so that D4 becomes the LSB.)

d. The data is made up of the number of frequency divisions data, the band data, and the comparison frequency data.
(See diagram below.)

Number of frequency divisions data

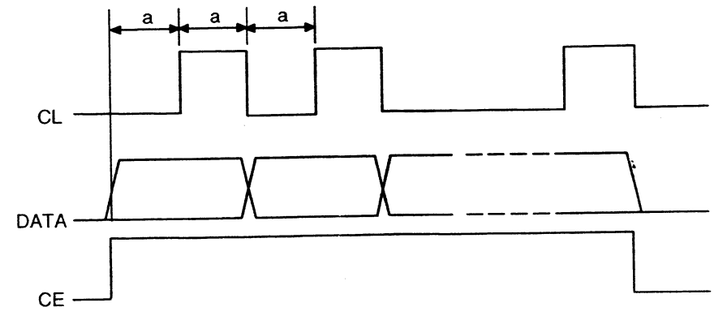
	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
FM	1	0	0	0	1	1	1	1	1	1	0	0	0	
AM	X	X	X	X	1	0	0	0	1	0	1	0	0	0

(T1)	(T2)	Band data			Comparison frequency data				
0	0	B0	B1	B2	0 (TB)	R0	R1	R2	S

Band	B0	B1	B2	B01	B02	B03
FM	0	1	0	0	1	0
MW	1	0	0	1	0	0
LW	1	0	1	1	0	1

Comparison frequency	R0	R1	R2		S
25kHz	0	1	0	→	1
9kHz	1	0	1		0
1kHz	1	1	0	→	0

e. Timing for sending
a = 2.5 μsec



µPD78044AGF-057-3B9 : 960 0007 006 (IC501) Terminal Function

Pin	Port Name	Function Name	I/O	Ini	Act	Function
1	P94/FIP6	7G	O	L	H	Fluorescent tube digit signal output.
2	P93/FIP5	6G	O	L	H	Fluorescent tube digit signal output.
3	P92/FIP4	5G	O	L	H	Fluorescent tube digit signal output.
4	P91/FIP3	4G	O	L	H	Fluorescent tube digit signal output.
5	P90/FIP2	3G	O	L	H	Fluorescent tube digit signal output.
6	P81/FIP1	2G	O	L	H	Fluorescent tube digit signal output.
7	P80/FIP0	1G	O	L	H	Fluorescent tube digit signal output.
8	VDD	5V	—	—	—	+5V.
9	P27/SCK0	SBCLK	O	L	H	DENON BUS clock.
10	P26/SO0/SB1	TXD0	O	L	H	DENON BUS data output.
11	P25/S10/SB0	RXD	I	L	H	DENON BUS data input.
12	P24/BUSY	RDS Reset	O	L	L	LC7070 reset output.
13	P23/STBY	PLLCE	O	H	H	PLL serial data selection output.
14	P22/SCK1	C Clock	I/O	H	—	RDS data fetch clock input and PLL control clock output.
15	P21/SO1	PLL Data	O	H	—	PLL serial data output.
16	P20/SI1	RDS Data	I	H	—	RDS serial data input.
17	RESET	RESET	I	H	H	Reset.
18	P74	PLLSTRQ	O	L	L	IF count operation request output.
19	P73	Signal In	I	H	L	RF signal detection signal input.
20	AVss	GND	—	—	—	A/D converter ground.
21	P17/ANI7	Tuned In	I	H	—	FM/AM sync signal input.
22	P16/ANI6	NC	I	H	—	VDD connection.
23	P15/ANI5	NC	I	H	—	VDD connection.
24	P14/ANI4	NC	I	H	—	VDD connection.
25	P13/ANI3	NC	I	H	—	VDD connection.
26	P12/ANI2	NC	I	H	—	VDD connection.
27	P11/ANI1	ANI1	I	—	—	Key input *1.
28	P10/ANI0	ANI0	I	—	—	Key input *2.
29	AVDD	AVDD	—	—	—	Analog 5V (Common power supply with VDD as a measure against leakage).
30	AVREF	AVREF	—	—	—	+5V (A/D converter reference voltage).
31	P04/XT1	XT1	I	—	—	32.7 kHz (Xtal input oscillator for the clock).
32	XT2	XT2	O	—	—	32.7 kHz (Xtal output oscillator for the clock).
33	Vss	Vss	—	—	—	Digital ground.
34	X1	OSCI	I	—	—	4.19 MHz (Xtal input).
35	X2	OSCO	O	—	—	4.19 MHz (Xtal output).
36	P37	Power On	O	H	H	Power on/off switching.
37	P36/BUZ	NC	O	L	L	Open.
38	P35/PCL	XTP	O	—	—	Xtal oscillator output (for frequency adjustments).
39	P34/T12	NC	O	L	L	Open.
40	P33/TI1	50/60	I	—	—	AC power supply frequency (50/60 Hz) detection.
41	P32/TO2	Local/DX	O	L	—	RF signal strengh control signal output.
42	P31/TO1	AUTO/MONO	O	L	—	Stereo (Auto)/Mono switching
43	P30/TO0	NC	O	L	L	Open
44	P03/INTP3/CI0	RDS Start	I	H	L	RDS signal start detection.
45	P02/INTP2	NC	O	L	L	Open
46	P01/INTP1	RXD	I	H	H	DENON BUS data signal iinput (Transfer start request detection).
47	P00/INTP0/TI0	REMOCON	I	—	—	Remove control received data input.
48	IC (Vpp)	Vpp	—	—	—	Ground (Set to 5V when PROM program is used).
49	P72	AM Stereo	I	H	L	AM stereo signal detection.
50	P71	Stop In	I	H	L	IF count sync detection.
51	P70	Stereo In	I	H	L	FM stereo recovery detection.
52	VDD	VDD	—	—	—	5V.
53	P127/FIP33	Muto Out	O	L	L	Mute output.
54	P126/FIP32	NC	O	L	L	Open.
55	P125/FIP31	NC	O	L	L	Open.
56	P124/FIP30	NC	O	L	L	Open.
57	P123/FIP29	NC	O	L	L	Open.
58	P122/FIP28	Diode In	I	—	L	AM STEREO, EX, RDS, and ADJUST functions selection switch (diode) state detection.
59	P121/FIP27	Jumper	I	—	H	Destination [Switch (diode) and frequency] state detection.
60	P120/FIP26	Seg16	O	L	L	Segment 16 output.
61	P117/FIP25	Seg15	O	L	L	Segment 15 output.
62	P116/FIP24	Seg14	O	L	L	Segment 14 output.
63	P115/FIP23	Seg13	O	L	L	Segment 13 output.
64	P114/FIP22	Seg12	O	L	L	Segment 12 output.
65	P113/FIP21	Seg11	O	L	L	Segment 11 output.
66	P112/FIP20	Seg10	O	L	L	Segment 10 output.
67	P111/FIP19	Seg9	O	L	L	Segment 9 output.
68	P110/FIP18	Seg8	O	L	L	Segmen 8 output.
69	P107/FIP17	Seg7	O	L	L	Segment 7 output.1
70	P106/FIP16	Seg6	O	L	L	Segment 6 output.
71	VLOAD	VLOAD	—	—	—	—High B.
72	P105/FIP15	Seg5	O	L	L	Fluorescent tube digit signal output.
73	P104/FIP14	Seg4	O	L	L	Fluorescent tube digit signal output.
74	P103/FIP13	Seg3	O	L	L	Fluorescent tube digit signal output.
75	P102/FIP12	Seg2	O	L	L	Fluorescent tube digit signal output.
76	P101/FIP11	Seg1	O	L	L	Fluorescent tube digit signal output.
77	P100/FIP10	11G	O	L	L	Fluorescent tube digit signal output.
78	P97/FIP9	10G	O	L	L	Fluorescent tube digit signal output.
79	P96/FIP8	9G	O	L	L	Fluorescent tube digit signal output.
80	P95/FIP7	8G	O	L	L	Fluorescent tube digit signal output.

*1: Each of the following buttons.....POWER, CLOCK/DISPLAY, TIMER, BAND, MONO/STEREO, and TUNING up/down.
*2 Each of the following buttons.....PRESET up/down, PANEL, CT, PTY, RDS, MEMO, and DIMMER.

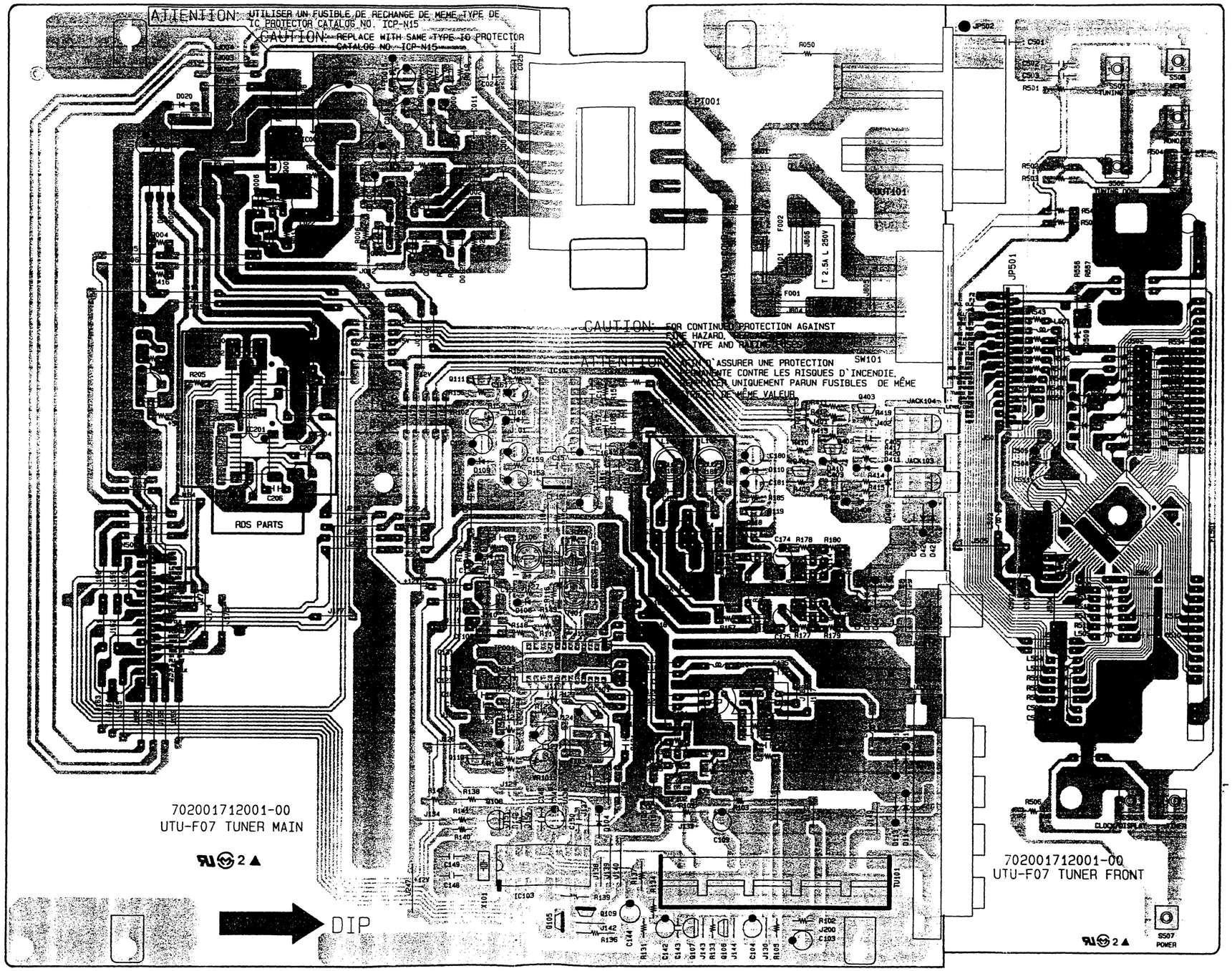
TUNER SECTION

PRINTED WIRING BOARD

TUNER UNIT ASS'Y

Component Side

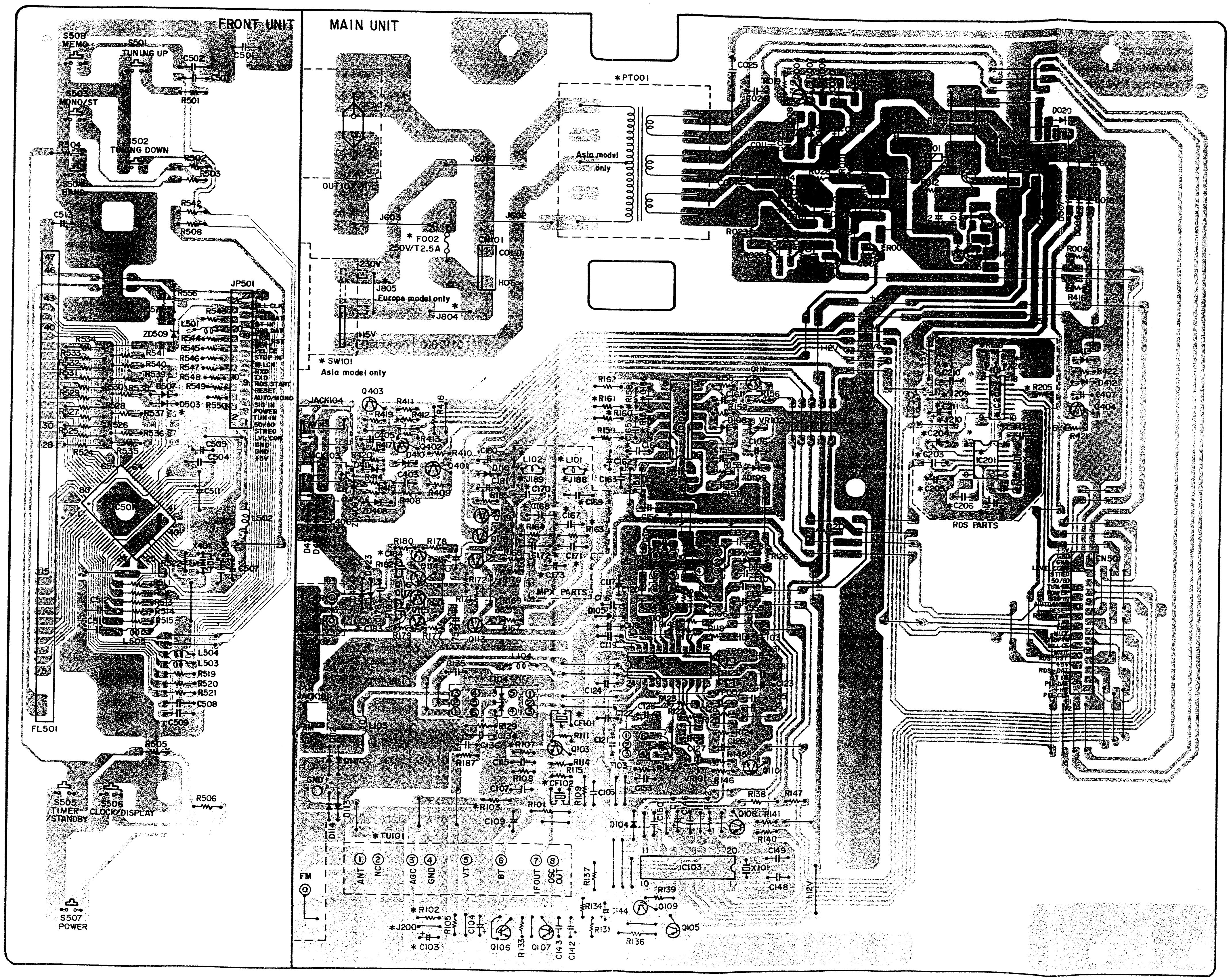
TUNER UNIT ASS'Y	
–1	Main Unit
–2	Front Unit



TUNER SECTION

1 2 3 4 5 6 7 8

Pattern Side



A
B
C
D
E

TUNER SECTION

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ■ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

• Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

• Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

• Capacity (electrolyte only)

2 2 2 ⇒ 2200μF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: μF.

• Capacity (except electrolyte)

2 2 2 ⇒ 2200pF = 0.0022μF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

P.W.B. UNIT ASS'Y PARTS LIST

TUNER UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
⚠ IC001	268 0073 995	IC ICP-N15	IC protector
⚠ IC003	263 0567 005	IC NJM78M05FA	Regulator +5V
⚠ IC004	960 0008 007	IC KIA7812A	Regulator +12V
or		IC JRC7812	Regulator +12V
IC101	263 0421 002	IC LA1267S	Linear RF
IC102	263 0584 004	IC LA3410	Linear RF
IC103	262 0703 002	IC LM7000	Linear IC
IC201	262 1827 000	IC SAA6579T	Demodulator Europe model only
IC202	262 1929 908	IC LC7074NM-TE-R	CPU microprocessor Europe model only
IC501	960 0007 006	IC μPD78044AGF-057-3B9	CPU microprocessor
Q001,002	273 0178 022	Transistor 2SC1740S(R)	
Q003	271 0110 000	Transistor KSA916(Y)	
Q004	271 0192 002	Transistor 2SA933S(S)	
Q005,006	273 0178 022	Transistor 2SC1740S(R)	
Q103	960 0008 801	Transistor KTC3194(O)	
Q105	269 0046 003	Transistor DTA114ES	Built in resistor
Q106	273 0178 022	Transistor 2SC1740S(R)	
Q107	273 0207 003	Transistor KSC1845(F)	
Q108	960 0008 801	Transistor KTC3194(O)	
Q109	269 0046 003	Transistor DTA114ES	Built in resistor
Q110	273 0178 022	Transistor 2SC1740S(R)	
Q111	273 0178 022	Transistor 2SC1740S(R)	
Q112,113	273 0178 022	Transistor 2SC1740S(R)	
Q114–117	269 0146 903	Transistor DTC343TS	Built in resistor
Q118,119	269 0046 003	Transistor DTA114ES	Built in resistor
Q401	273 0178 022	Transistor 2SC1740S(R)	
Q402,403	271 0192 002	Transistor 2SA933S(S)	
Q404	269 0040 009	Transistor DTC144ES	Built in resistor
⚠ D001–005	916 0053 008	Diode 1N4002A	Rectifier
D006,007	960 0031 409	Diode 1SS131	
D008,009	916 0053 008	Diode 1N4002A	
D010	960 0031 409	Diode 1SS131	
D012	960 0031 409	Diode 1SS131	
D018	960 0031 409	Diode 1SS131	
D020	960 0031 409	Diode 1SS131	
D104,105	960 0031 409	Diode 1SS131	
D106–110	276 0401 002	Diode 1SS133	
D111–114	960 0031 409	Diode 1SS131	
D410–413	276 0401 002	Diode 1SS133	
D420,421	960 0031 409	Diode 1SS131	
D423,424	960 0031 409	Diode 1SS131	
D503	276 0401 002	Diode 1SS133	Europe model only
D507	276 0401 002	Diode 1SS133	
ZD013	276 0636 903	Zener diode MTZJ8.2B	8.2 V
ZD015	9H3 0000 231	Zener diode MTZJ27B	27 V
ZD408,409	9H3 0000 509	Zener diode MTZJ6.2B	6.2 V
ZD509	9H3 0000 509	Zener diode MTZJ6.2B	6.2 V
FL501	960 0007 103	F.L.D tube 11-BT-127GK	
RESISTORS			
VR101	211 6075 053	Semifixed resistor 47 kohm	Auto stop level
VR102	211 6075 066	Semifixed resistor 220 kohm	Separation
R001	241 2402 977	Carbon film 56 kohm 1/6W	RD14B2E563J(5)
R002	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R003,004	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R005	241 2402 977	Carbon film 56 kohm 1/6W	RD14B2E563J(5)
R006	241 2318 003	Carbon film 3.9 kohm 1/6W	RD14B2E392F ±1%
R007	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R008	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R011	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R012	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R013	241 2399 954	Carbon film 2.7 kohm 1/6W	RD14B2E272J(5)
R014	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
⚠ R016	244 0151 006	Metal oxide 150 ohm 1W(NB)	RS14B3A151JNB
R019	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R022	241 2401 965	Carbon film 20 kohm 1/6W	RD14B2E203J(5)
R023	241 2402 919	Carbon film 33 kohm 1/6W	RD14B2E333J(5)
⚠ R024	244 0151 006	Metal oxide 150 ohm 1W(NB)	RS14B3A151JNB
⚠ R026	960 9001 803	Fusible 1 ohm 1/4W (FR)	RD14B2E010JFRF
⚠ R101	241 2313 008	Fusible 100 ohm 1/4W (FR)	RD14B2E101GFRF
R102	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5) Europe model only
R103	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5) Europe model only
R105	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R107	241 2394 069	Carbon film 22 ohm 1/6W	RD14B2E220J(5) Europe model

TUNER SECTION

Ref. No.	Part No.	Part Name	Remarks
R107	241 2395 068	Carbon film 56 ohm 1/6W	RD14B2E560J(5)
			Asia model
R108	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R109	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R111	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R114	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R115	241 2398 010	Carbon film 680 ohm 1/6W	RD14B2E681J(5)
R116,117	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R118	241 2396 009	Carbon film 82 ohm 1/6W	RD14B2E820J(5)
R119	241 2397 082	Carbon film 5.1 kohm 1/6W	RD14B2E512J(5)
R120	241 2397 972	Carbon film 470 ohm 1/6W	RD14B2E471J(5)
R121	241 2402 016	Carbon film 30 kohm 1/6W	RD14B2E303J(5)
			Europe model
R121	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
			Asia model
R122–124	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R125	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R126	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R127	241 2399 954	Carbon film 2.7 kohm 1/6W	RD14B2E272J(5)
R128	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R129	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R130	241 2405 974	Carbon film 1 Mohm 1/6W	RD14B2E105J(5)
			Europe model only
R131	241 2400 979	Carbon film 8.2 kohm 1/6W	RD14B2E822J(5)
R133	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R134	241 2399 912	Carbon film 1.8 kohm 1/6W	RD14B2E182J(5)
⚠ R135	241 2313 008	Fusible 100 ohm 1/4W (FR)	RD14B2E101GFRF
R137	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
⚠ R138	241 2315 019	Fusible 10 ohm 1/4W (FR)	RD14B2E100GFRF
R139	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R140	241 2403 073	Carbon film 150 kohm 1/6W	RD14B2E154J(5)
R141,142	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R143	241 2402 993	Carbon film 68 kohm 1/6W	RD14B2E683J(5)
R145	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R146	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R147	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R149	241 2400 034	Carbon film 5.6 kohm 1/6W	RD14B2E562J(5)
R150	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
			Europe model only
⚠ R151	241 2313 008	Fusible 100 ohm 1/4W (FR)	RD14B2E101GFRF
R152	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R153	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R155	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R156	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R157,158	241 2403 099	Carbon film 180 kohm 1/6W	RD14B2E184J(5)
			Europe model
R157,158	241 2403 950	Carbon film 120 kohm 1/6W	RD14B2E124J(5)
			Asia model
R159	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)

Ref No.	Part No.	Part Name	Remarks
R160,161	241 2404 001	Carbon film 200 kohm 1/6W	RD14B2E204J(5)
			Europe model
R160,161	241 2403 950	Carbon film 120 kohm 1/6W	RD14B2E124J(5)
			Asia model
R162	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R163,164	241 2401 017	Carbon film 12 kohm 1/6W	RD14B2E123J(5)
			Europe model only
R167,168	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R169,170	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R171,172	241 2400 034	Carbon film 5.6 kohm 1/6W	RD14B2E562J(5)
R177–180	241 2397 972	Carbon film 470 ohm 1/6W	RD14B2E471J(5)
R181,182	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R185	241 2400 034	Carbon film 5.6 kohm 1/6W	RD14B2E562J(5)
R187	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R204	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R205	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
			Europe model only
R408,409	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R410,411	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R412,413	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R414	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R415,416	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R417	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R418	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R419	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R420	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R421	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R422	241 2405 974	Carbon film 1 Mohm 1/6W	RD14B2E105J(5)
R501,502	241 2396 960	Carbon film 150 ohm 1/6W	RD14B2E151J(5)
R503	241 2396 083	Carbon film 180 ohm 1/6W	RD14B2E181J(5)
R504	241 2397 927	Carbon film 270 ohm 1/6W	RD14B2E271J(5)
R505	241 2397 066	Carbon film 390 ohm 1/6W	RD14B2E391J(5)
R506	241 2398 010	Carbon film 680 ohm 1/6W	RD14B2E681J(5)
R508	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R511–515	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R519–521	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R522	241 2405 974	Carbon film 1 Mohm 1/6W	RD14B2E105J(5)
R524–541	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R542–550	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R556,557	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)

CAPACITORS

⚠ C001–004	960 9001 100	Ceramic cap. 0.01 μF/500V	CK45F2H103Z
C005	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C006	254 4256 091	Electrolytic 2200 μF/25V	CE04W1E222MC
C007	253 1174 018	Ceramic cap. 0.01 μF/16V	CK14Y1C103M

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Ref. No.	Part No.	Part Name	Remarks
C008	254 4254 048	Electrolytic 100 µF/16V	CE04W1C100M
C009	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C010	254 4254 048	Electrolytic 100 µF/16V	CE04W1C100M
⚠ C017	960 800 207	Ceramic cap. 0.022 µF/500V	CK45F2H223Z
C018	253 1027 000	Ceramic cap. 0.1 µF/50V	CK45F1H104Z
C019	254 4261 028	Electrolytic 100 µF/50V	CE04W1H101M
C020	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C021	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C022	254 4261 028	Electrolytic 100 µF/50V	CE04W1H101M
⚠ C023	960 001 100	Ceramic cap. 0.01 µF/500V	CK45F2H103Z
C024	253 1027 000	Ceramic cap. 0.1 µF/50V	CK45F1H104Z
C025	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C103	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
			Europe model only
C104	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C105	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C106	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C107	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C109	254 4254 048	Electrolytic 100 µF/16V	CE04W1C100M
C115	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C116	253 9030 086	Ceramic cap. 0.022 µF/25V	CK45=1E223K
C117	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C118,119	253 9030 086	Ceramic cap. 0.022 µF/25V	CK45=1E223K
C120	253 4342 012	Ceramic cap. 10pF/50V	CC45SL1H100C
C121	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C122	253 1055 069	Ceramic cap. 100pF/50V	CK45B1H101K
C123	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C124	253 3611 003	Ceramic cap. 22pF/50V	CC45SL1H220J
C125	254 4260 074	Electrolytic 4.7 µF/50V	CE04W1H4R7M
C126	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C127	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C128	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K
C129	255 1121 041	Film cap. 0.015 µF/50V	CQ93M1H153J
C130	253 1027 000	Ceramic cap. 0.1 µF/50V	CK45F1H104Z
C131	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C132	253 3615 009	Ceramic cap. 33pF/50V	CC45SL1H330J
C133	253 1055 014	Ceramic cap. 560pF/50V	CK45B1H561K
			Europe model only
C134	253 3607 004	Ceramic cap. 15pF/50V	CC45SL1H150J
C135	253 3599 002	Ceramic cap. 6pF/50V	CC45SL1H060D
C136	253 1026 001	Ceramic cap. 0.047 µF/50V	CK45F1H473Z
C138	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C142	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C143	255 1121 078	Film cap. 0.027 µF/50V	CQ93M1H273J
C144	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
C146	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C147	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
C148,149	253 3611 003	Ceramic cap. 22pF/50V	CC45SL1H220J
C150	253 1055 069	Ceramic cap. 100pF/50V	CK45B1H101K

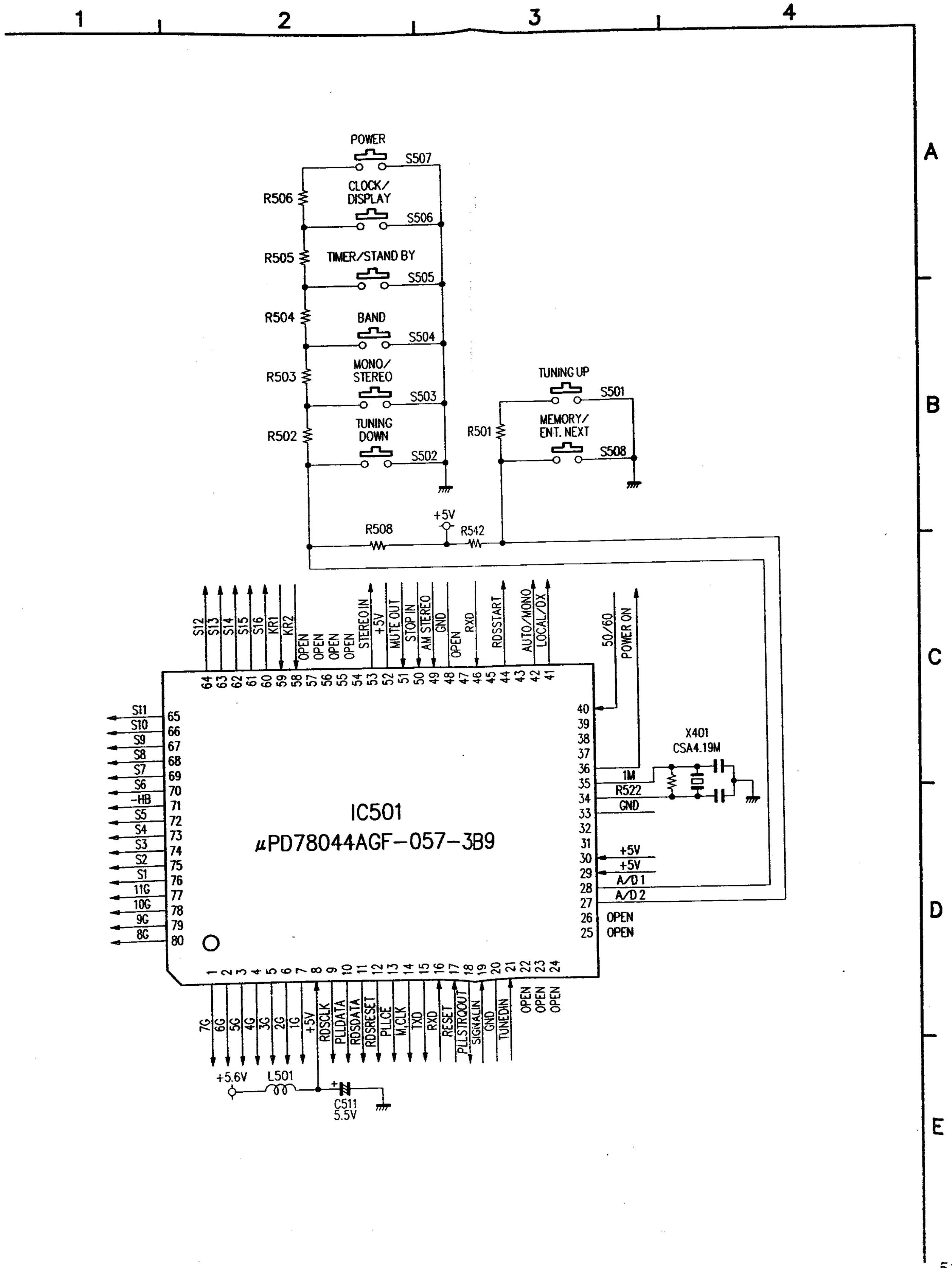
Ref No.	Part No.	Part Name	Remarks
C153	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C155	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C156	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C157	255 4224 903	Film cap. 0.047 µF/50V	CQ92M1H473J(MRZ)
C158	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C159	254 3056 001	Electrolytic 0.47 µF/50V(Bipolar)	CE04D1HR47MBP
C161	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C162	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
C163	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C164	253 1001 000	Ceramic cap. 330pF/50V	CK45B1H331K
C165,166	253 1055 001	Ceramic cap. 270pF/50V	CK45B1H271K
			Europe model
C165,166	253 1002 009	Ceramic cap. 470pF/50V	CK45B1H471K
			Asia model
C167,168	253 1173 941	Ceramic cap. 2700pF/16V	CK14X1C272K
			Europe model only
C169,170	253 1173 925	Ceramic cap. 1800pF/16V	CK14X1C182K
			Europe model only
C171,172	253 1173 909	Ceramic cap. 1200pF/16V	CK14X1C122M
			Europe model only
C173	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
			Europe model only
C174,175	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
C178	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C180	254 4254 048	Electrolytic 100 µF/16V	CE04W1C100M
C181	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C183,184	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K
			Europe model only
C185	253 1055 069	Ceramic cap. 100pF/50V	CK45B1H101K
C201,202	253 3613 001	Ceramic cap. 27pF/50V	CC45SL1H270J
			Europe model only
C203	253 1055 069	Ceramic cap. 100pF/50V	CK45B1H101K
			Europe model only
C204	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
			Europe model only
C205	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
			Europe model only
C206	253 1055 014	Ceramic cap. 560pF/50V	CK45B1H561K
			Europe model only
C207	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
			Europe model only
C210	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
			Europe model only
C211	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
			Europe model only
C403	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K
C405	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K
C406	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K

Ref. No.	Part No.	Part Name	Remarks	
C407	254 4260 074	Electrolytic 4.7 µF/50V	CE04W1H4R7M	
C501	253 9030 086	Ceramic cap. 0.022 µF/25V	CK45=1E223K	
C502,503	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K	
C504	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M	
C505	254 4252 037	Electrolytic 100 µF/10V	CE04W1A101M	
C506	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M	
C507	254 4252 037	Electrolytic 100 µF/10V	CE04W1A101M	
C508–510	253 1004 007	Ceramic cap. 1000pF/50V	CK45B1H102K	
C511	960 9001 003	Super cap. 0.047F/5.5V	for back-up	
C512	253 1174 018	Ceramic cap. 0.01 µF/16V	CK14Y1C103M	
C513	254 4258 015	Electrolytic 10 µF/35V	CE04W1V100M	
OTHER PARTS				Q'ty
	—	(P.W.board)		(1)
L101,102	960 0007 310	Inductor 39 mH	D33039300052 Europe model only	2
L103	960 0007 307	Inductor 1 µH	D3301R070000	1
L104	960 0010 307	Inductor 10 µH	D33010070052	1
L501–505	960 0007 307	Inductor 1 µH	D3301R070000	5
T101	960 0007 349	FM IF coil	D95156110000	1
T102	960 0007 352	FM IF coil	D95156120000	1
T103	960 0007 323	MW IF coil	D95050020000	1
T104	960 0007 336	MW IF coil Black	D95050050000	1
T106	960 0037 607	Anti birdie filter	E40312683241 Europe model only	1
CF101,102	261 0120 006	FM ceramic filter	SFE10.7MS3GK-A Europe model	2
CF101,102	960 0043 400	FM ceramic filter	SFE10.7MA5 Asia model	2
CF103	940 0425 202	AM ceramic filter	BFU450C4N	1
CF105	261 0079 005	Ceramic resonator	CSB456F11	1
X101	960 0008 005	Crystal 7.2 MHz	E8007R200003	1
X201	960 0037 704	Crystal 4.332 MHz	E8004R332001 Europe model only	1
X202	399 9018 003	Ceramic resonator CST4.00MGW	E83049000001 Europe model only	1
X401	399 0107 007	Ceramic resonator CST4.19MGW	E8304R100000	1
TU101	960 0037 319	FM tuner pack (FE415-G11)	E90000011000 Europe model	1
TU101	960 0037 306	FM tuner pack (FTH3-504VA)	E90000019000 Asia model	1
S501–508	DCD 2150 426	Tact switch	G18000027000	8

Ref No.	Part No.	Part Name	Remarks	
JACK101	960 0008 209	4 P Ant. terminal	G04010580000	1
JACK102	960 0008 403	2 P pin jack	G60102004400	1
JACK103, 104	960 0004 407	Mini jack φ3.5	G40103110201	2
[redacted]				
	960 0005 804	Fuse holder	for F002 G64500005001	2
	—	Fuse label	for F002	1
[redacted]				
CN501	—	27P FP cable	L13152045270	1
JP501	960 0006 201	27P FP cable L=120 mm	L30112127000	1
JP501	960 0037 908	27P FP cable	L13152044270	1
JP502	—	Vinyl wire Black L=120 mm	841012126000	1
TP001,002	—	Test pin	L421000010000	2
	960 0036 909	Terminal	379000012000	4
	—	Earth plate	447000393000 Asia model	1
	—	Earth plate	447000528601 Europe model	1
	960 0007 200	FLD holder	432002015601	1
J001–015	—	Jumper wire	L40200002002	15
J017,018	—	Jumper wire	L40200002002	2
J101–103	—	Jumper wire	L40200002002	3
J106–111	—	Jumper wire	L40200002002	6
J114–124	—	Jumper wire	L40200002002	11
J126–134	—	Jumper wire	L40200002002	9
J136–140	—	Jumper wire	L40200002002	5
J142–144	—	Jumper wire	L40200002002	3
J149	—	Jumper wire	L40200002002	1
J151–169	—	Jumper wire	L40200002002	19
J171	—	Jumper wire	L40200002002	1
J173–175	—	Jumper wire	L40200002002	3
J177–189	—	Jumper wire	L40200002002	13
J191	—	Jumper wire	L40200002002	1
J200–210	—	Jumper wire	L40200002002	11
J218–224	—	Jumper wire	L40200002002	7
J402,403	—	Jumper wire	L40200002002	2
J502–511	—	Jumper wire	L40200002002	10
J601–603	—	Jumper wire	L40200002002	3
J804–806	—	Jumper wire	L40200002002	3

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

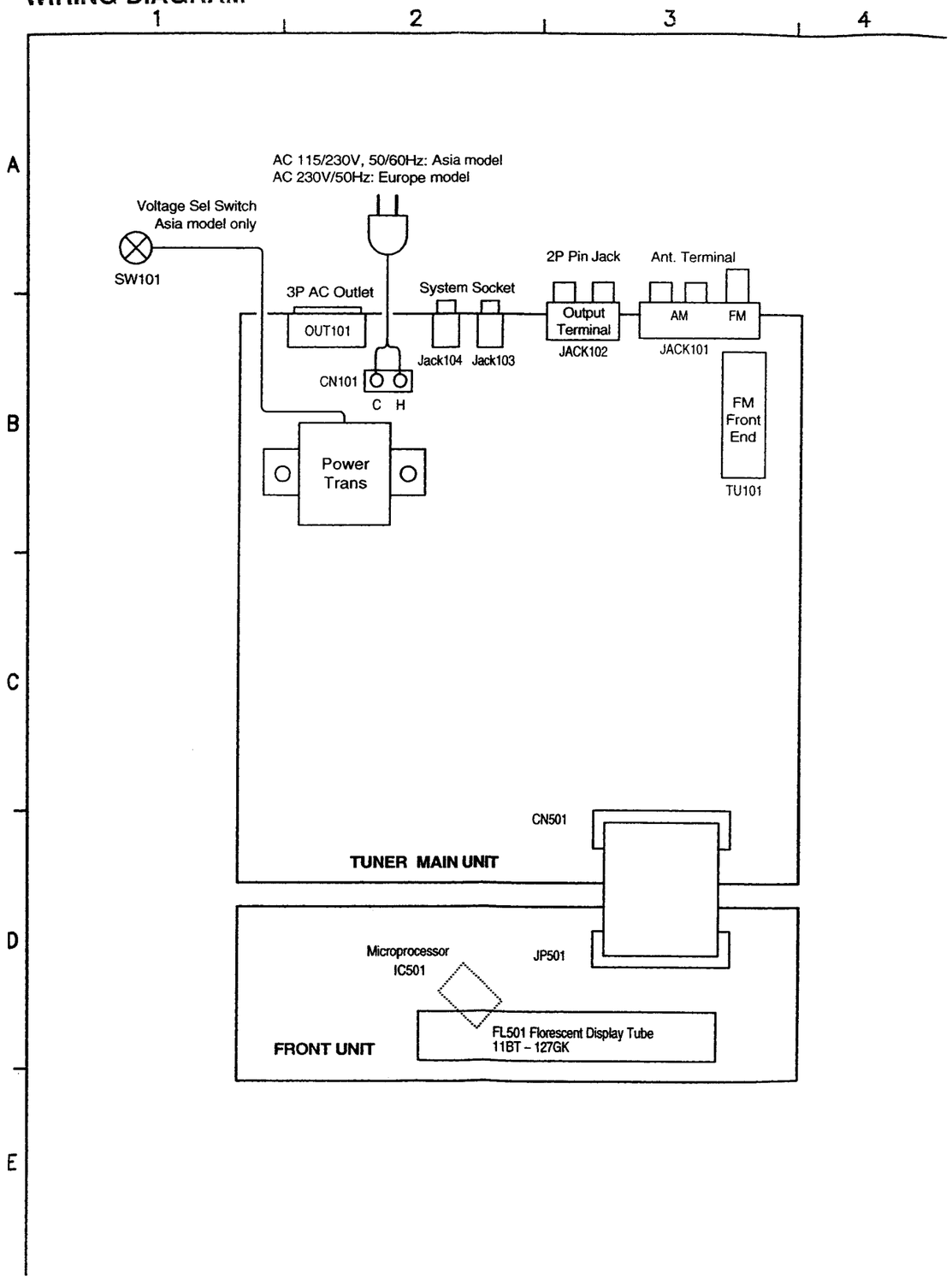
TUNER SECTION



DENO-00297 / Druck:9

TUNER SECTION

WIRING DIAGRAM



Contrast list

〈MAIN PARTS〉

TITLE	Asia model	Europe model
R102	×	4.7 kohm
R103	×	10 kohm
R107	56 ohm	22 ohm
R121	15 kohm	30 kohm
R150	×	3.3 kohm
C103	×	10µF/50 V
C133	×	560 pF
C183	×	1000 pF
C184	×	1000 pF
CF101	SFE10.7MA5	SFE10.7MS3GK-A
CF102	SFE10.7MA5	SFE10.7MS3GK-A
T106	×	○
⚠ F001	×	○
⚠ F002	Fuse 2.5 A/250 V	Fuse 2.5 A/250 V
⚠ S001	○	×
J184	○	×
J185	○	×
J200	○	×
J804	○	○
J805	×	○
TU101	960 0037 306	960 0037 319

〈DE-EMPHASIS PARTS〉

TITLE	Asia model	Europe model
R157	120 kohm	180 kohm
R158	120 kohm	180 kohm
R160	120 kohm	200 kohm
R161	120 kohm	200 kohm
C165	470 pF	270 pF
C166	470 pF	270 pF

〈MPX FILTER PARTS〉

TITLE	Asia model	Europe model
R163	×	12 kohm
R164	×	12 kohm
C167	×	2700 pF
C168	×	2700 pF
C169	×	1800 pF
C170	×	1800 pF
C171	×	1200 pF
C172	×	1200 pF
C173	×	47µF/16 V
L101	×	39 mH
L102	×	39 mH
J188	○	×
J189	○	×

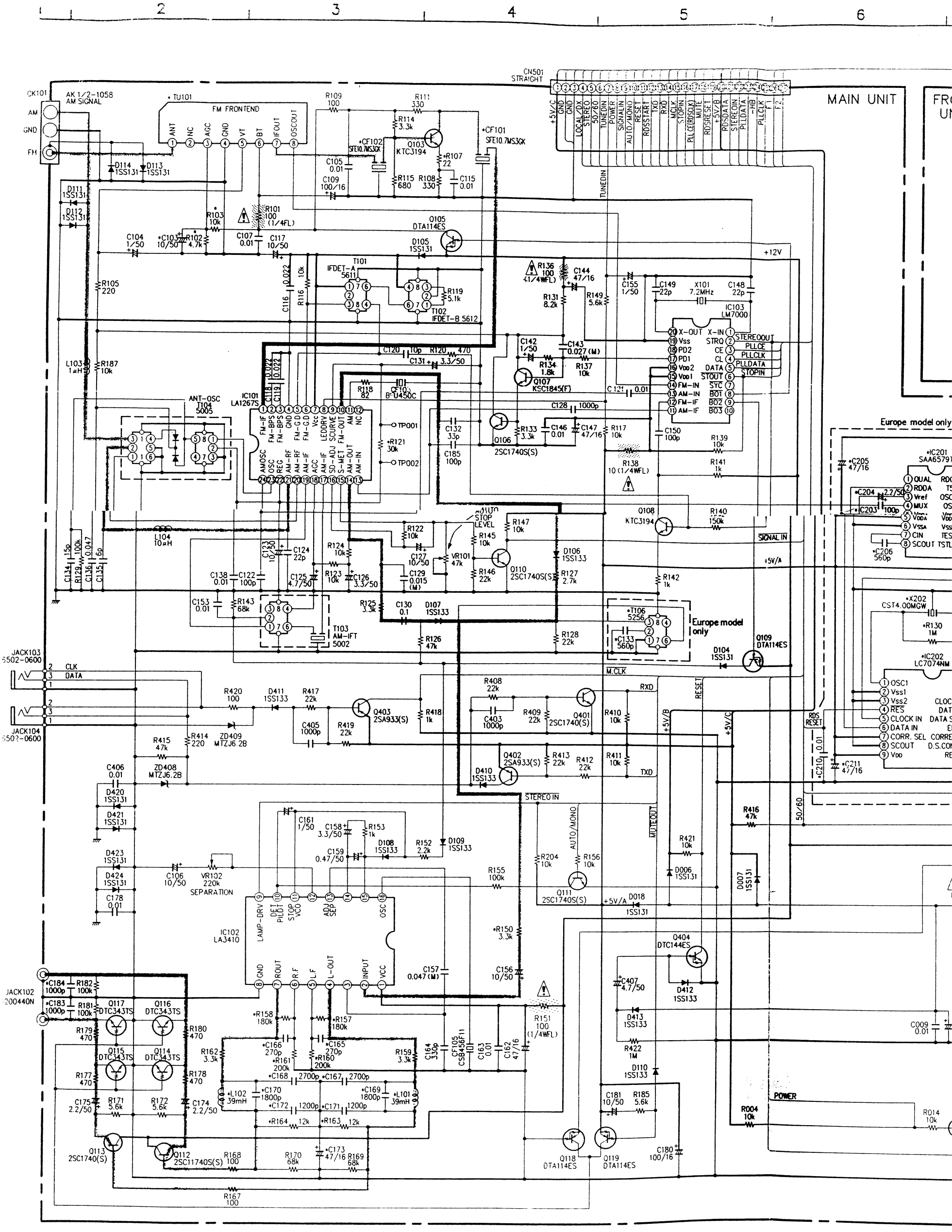
〈RDS PARTS〉

TITLE	Asia model	Europe model
IC201	×	SAA6579T
IC202	×	LC7074NM
R130	×	1 Mohm
R205	×	1 kohm
C201	×	27 pF
C202	×	27 pF
C203	×	100 pF
C204	×	2.2µF/50 V
C205	×	47µF/16 V
C206	×	560 pF
C207	×	47µF/16 V
C210	×	0.01 µF
C211	×	47µF/16 V
X201	×	Crystal 4.332 MHz
X202	×	Ceramic Resonator CST4.00MGW
J209,210	×	○

〈OPTION PARTS〉

TITLE	Asia model	Europe model
D502	×	×
D503	×	1SS133
⚠ PT001	960 0034 202	960 0034 600

SCHEMATIC DIAGRAM



NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

TUNER SECTION

6 7 8 9 10 11

A B C D E F G H

MAIN UNIT

FRONT UNIT

JP501 ANGLE

11-BT-127GK FL501

IC501 μPD78044AGF-057-3B9

Europe model only (RDS PARTS)

*IC201 SAA6579T

*IC202 LC7074NM

*X201 4.332MHz

*X202 CST4.00MGW

X401 CST4.19MGW

IC003 NJM78M05FA

IC004 KIA7812A

IC001 ICPN15

*PT001 POWER TRANSFORMER

Asia Model

Europe Model

AC CORD AC 115/230V 50/60Hz

AC 230V/50Hz

+12VV

+5V/B

+5V/C

50/60

RDS RESET

-HB

+B LINE

SIGNAL LINE

WARNING:
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

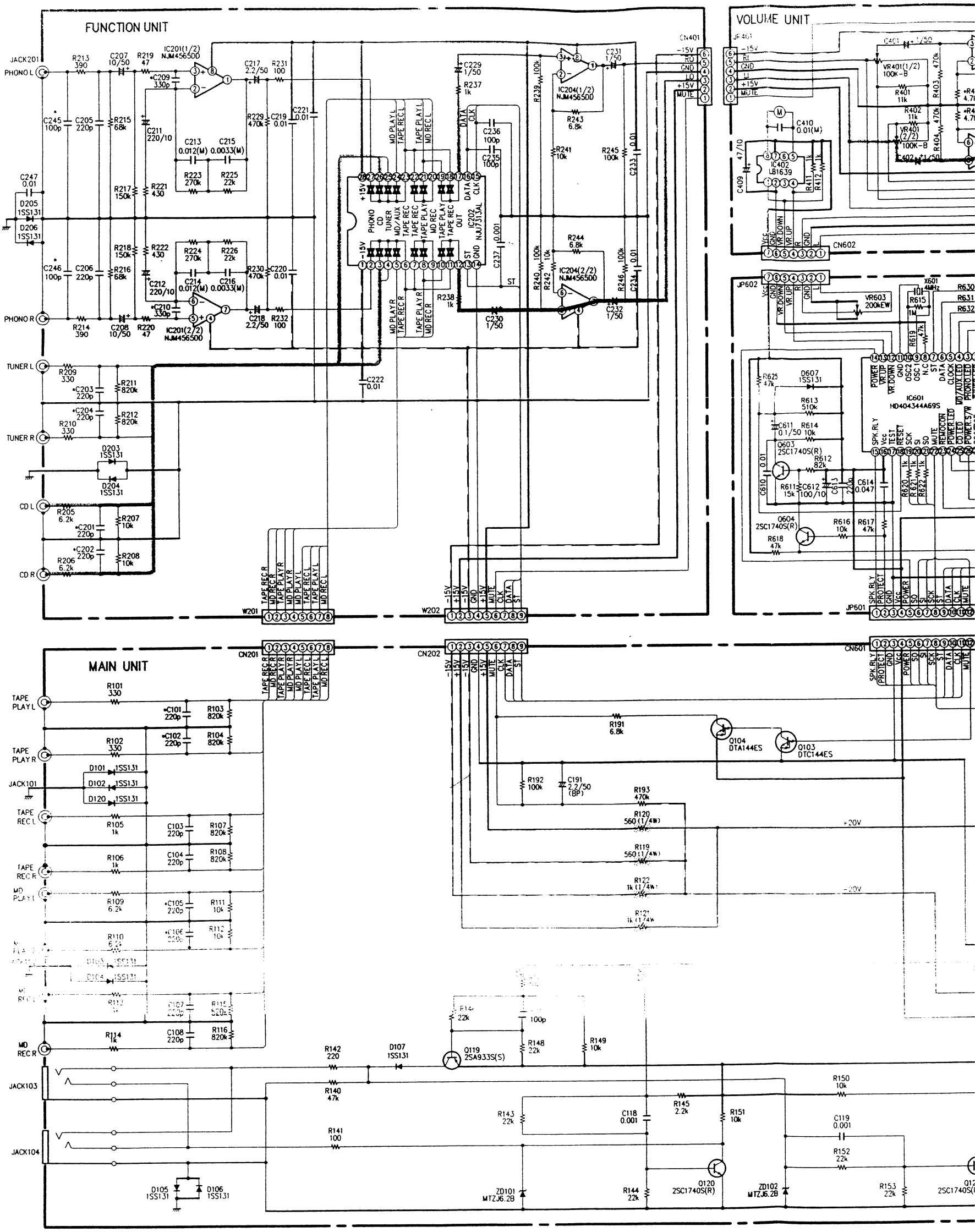
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and

N OHM. k=1,000 OHM, M=1,000,000 OHM
S IN MICRO FARAD. P=MICRO-MICRO FARAD
ENT ARE MEASURED AT NO SIGNAL INPUT

SUBJECT TO CHANGE WITHOUT PRIOR

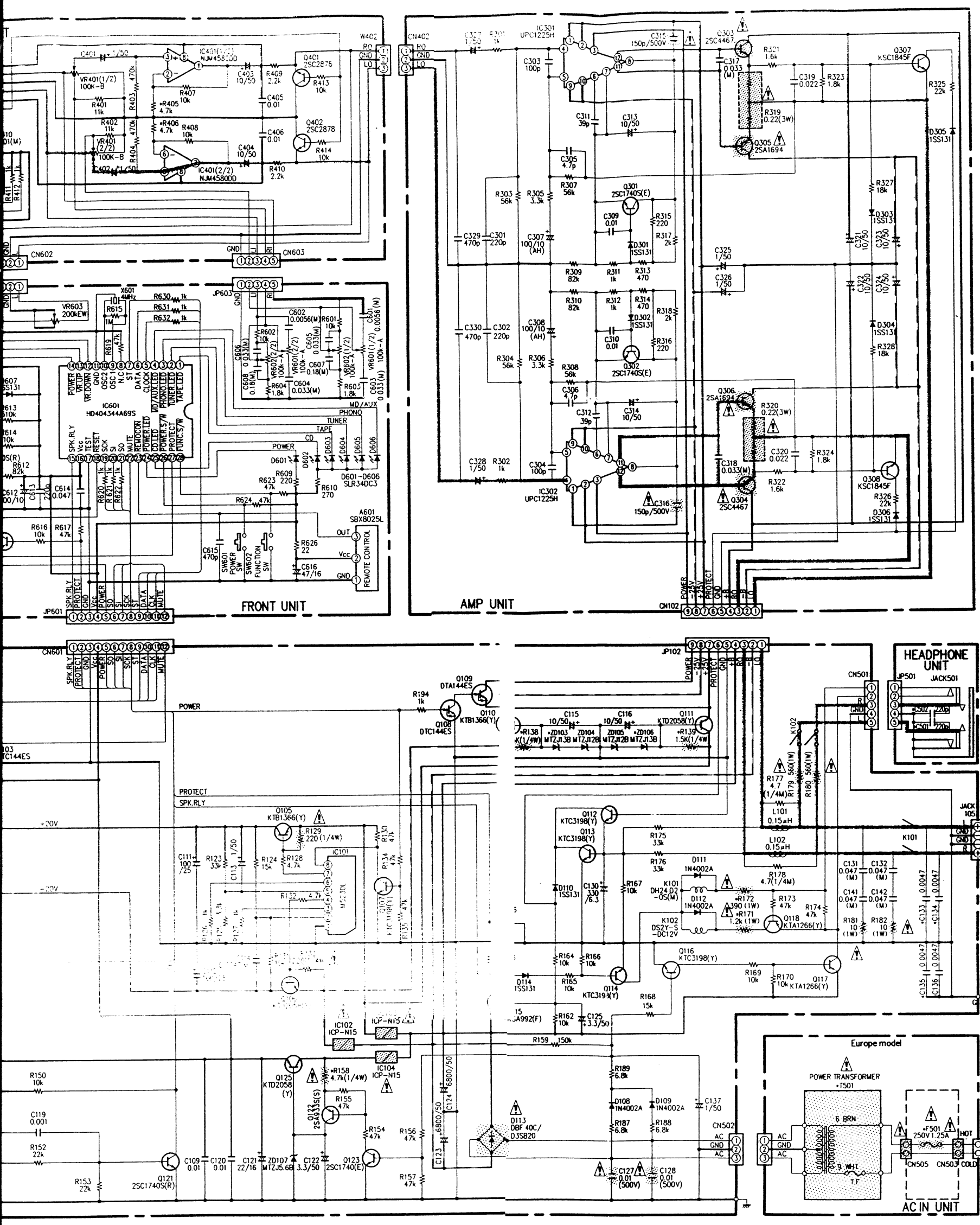
SCHEMATIC DIAGRAM



PART NO. / TYPE	ZD103 ZD106	⚠ R138 ⚠ R139	⚠ R158	⚠ R171	⚠ R172	R405 R406	C101, 102, 105, 106 C201~204, C501, 502	C133~136	C209, C210	C245, C246	⚠ F501	⚠ F502	⚠ S
Asia model	MTZJ16B	2.2kohm(1/4W)	5.6kohm(1/4W)	1.8kohm(2W)	680ohm(1W)	2.7kohm	— (NO)	— (NO)	470pF	— (NO)	T 2.5A/ 250V	T 1.25A/ 250V	Y
Europe model	MTZJ13B	1.5kohm(1/4W)	4.7kohm(1/4W)	1.2kohm(2W)	390ohm(1W)	4.7kohm	220pF (YES)	4700pF (YES)	330pF	100pF (YES)	T 1.25A/ 250V	NO	

6 7 8 9 10 11

A B C D E F G H



C245, C246	⚠ F501	⚠ F502	⚠ SW501	⚠ T501
– (NO)	T 2.5A/ 250V	T 1.25A/ 250V	YES	115/230V 50/60Hz (9600033601)
0pF (YES)	T 1.25A/ 250V	NO	NO	230V 50Hz (9600033009)

NOTES

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:

Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 2.6 megohms, the unit is defective.

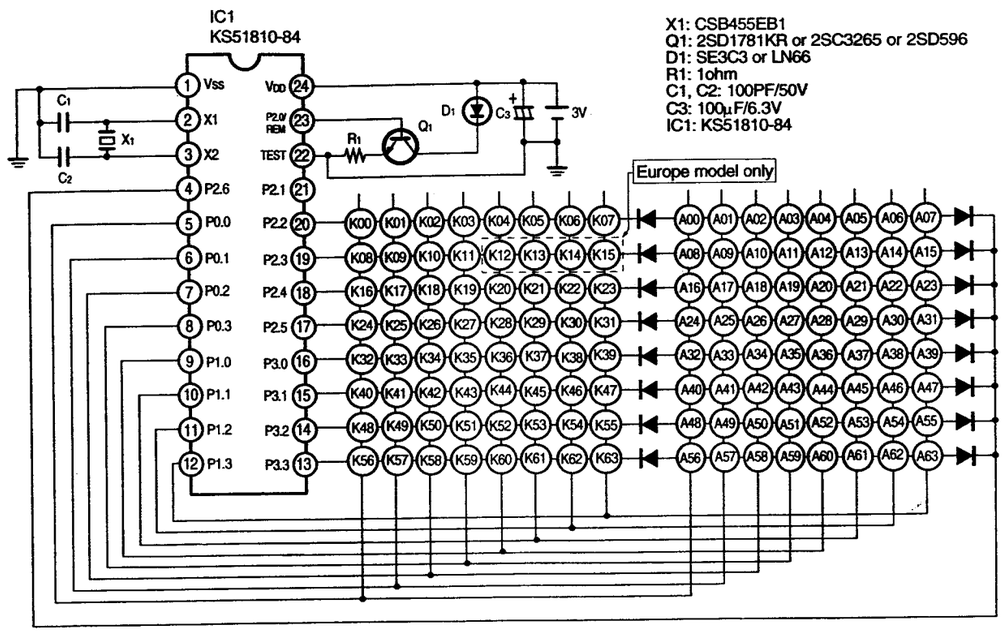
WARNING:

DO NOT return the unit to the customer with high voltage arcing or shorted out.

REMOTE CONTROL UNIT (RC-807: Part No. 960 0033 300 Europe model, RC-806: Part No. 960 0006 007 Asia model)

1 2 3 4 5 6 7 8

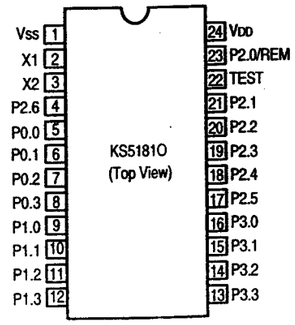
● Schematic Diagram

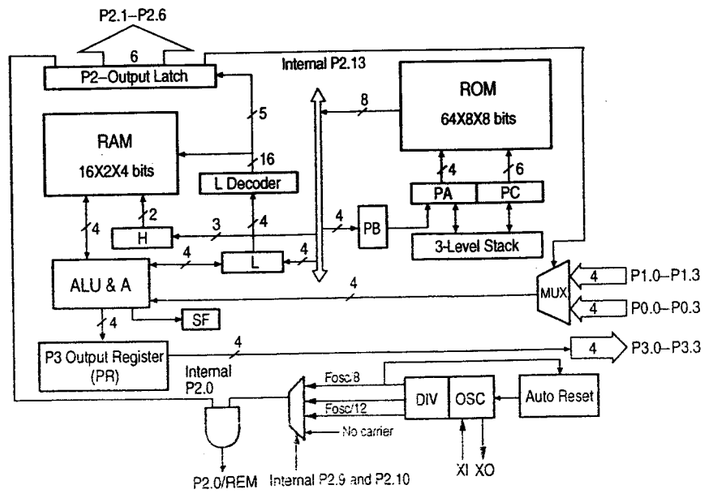


NOTES
ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

● IC

KS51810-84





* Europe model only

FIXED DATA

KEY NO.	KEY FUNCTION	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
K00	POWER	0	0	1	1	0	0	0	0	0	1	0	1	0
K01	PRESET ▲	0	0	1	1	0	0	1	1	1	0	0	1	0
K02	PRESET ▼	0	0	1	1	0	1	1	1	1	0	0	1	0
K03	VOLUME ▲	0	0	1	1	0	1	0	1	1	0	0	1	0
K04	VOLUME ▼	0	0	1	1	0	0	0	1	1	0	0	1	0
K05	FUNCTION	0	0	1	1	0	1	1	1	1	1	0	1	0
K06	TUNER	0	0	1	1	0	1	0	0	1	1	0	1	0
K07	SLEEP	0	0	1	1	0	0	1	0	0	1	1	1	0
K08	BAND	0	0	1	1	0	1	1	1	0	1	0	1	1
K09	TUNER ▼	0	0	1	1	0	0	1	0	1	1	0	1	1
K10	TUNER ▲	0	0	1	1	0	1	0	0	1	1	0	1	1
K11	MEMO	0	0	1	1	0	1	0	0	0	1	0	1	1
* K12	RDS	0	0	1	1	0	0	1	0	0	1	0	1	1
* K13	CT	0	0	1	1	0	1	1	0	0	1	0	1	1
* K14	PTY	0	0	1	1	0	0	0	1	0	1	0	1	1
* K15	PANNEL	0	0	1	1	0	0	1	1	1	1	0	1	1
K27	CD ⏮	0	0	0	1	0	1	0	0	1	1	0	1	0
K28	CD ⏭	0	0	0	1	0	0	0	0	1	1	0	1	0
K29	CD ■	0	0	0	1	0	0	1	1	1	1	0	1	0
K30	CD ▶	0	0	0	1	0	0	0	1	1	1	0	1	0
K31	CD ◀◀	0	0	0	1	0	1	1	0	1	1	0	1	0
K32	CD ▶▶	0	0	0	1	0	0	1	0	1	1	0	1	0
K33	DIRECT	0	0	0	1	0	1	1	1	0	1	0	1	0
K34	REPEAT	0	0	0	1	0	0	0	1	0	1	0	1	0
K35	RANDOM	0	0	0	1	0	0	1	0	1	0	1	1	0
K36	PROGRAM	0	0	0	1	0	1	0	1	1	0	0	1	0
K37	CANCEL	0	0	0	1	0	1	0	0	0	1	0	1	0
K38	EDIT	0	0	0	1	0	0	0	0	0	1	1	1	0
K39	TIME	0	0	0	1	0	1	1	0	0	1	0	1	0
K40	TAPE ◀	0	0	1	0	0	1	1	1	0	1	0	1	0
K41	TAPE ■	0	0	1	0	0	0	1	1	1	1	0	1	0
K42	TAPE ▶	0	0	1	0	0	0	0	1	1	1	0	1	0
K43	TAPE ◀◀	0	0	1	0	0	1	1	0	1	1	0	1	0
K44	TAPE ▶▶	0	0	1	0	0	0	1	0	1	1	0	1	0
K45	REC /REC MUTE●	0	0	1	0	0	1	1	1	1	1	0	1	0
K46	RESET	0	0	1	0	0	0	0	1	0	1	0	1	0
K47	REMAIN	0	0	1	0	0	0	0	1	0	1	1	1	0
K48	TAPE SIZE	0	0	1	0	0	0	0	0	0	0	1	1	0
K49	REV. MODE	0	0	1	0	0	0	1	0	0	0	1	1	0

TUNER mode (TUNER key)

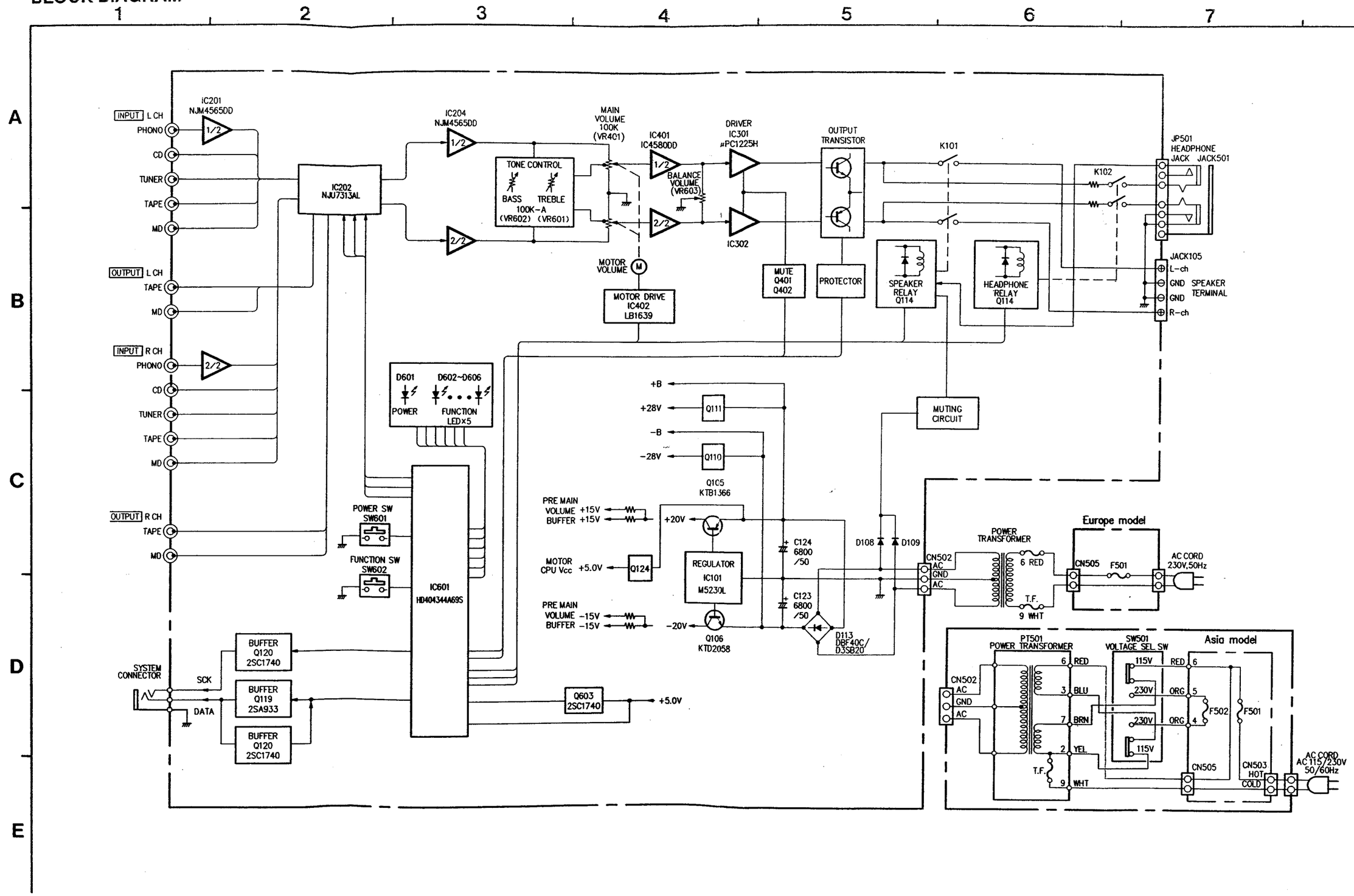
KEY NO.	KEY FUNCTION	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
K16	1	0	0	1	1	0	0	1	0	0	0	0	1	0
K17	2	0	0	1	1	0	1	1	0	0	0	0	1	0
K18	3	0	0	1	1	0	0	0	1	0	0	0	1	0
K19	4	0	0	1	1	0	1	0	1	0	0	0	1	0
K20	5	0	0	1	1	0	0	1	1	0	0	0	1	0
K21	6	0	0	1	1	0	1	1	1	0	0	0	1	0
K22	7	0	0	1	1	0	0	0	0	1	0	0	1	0
K23	8	0	0	1	1	0	1	0	0	1	0	0	1	0
K24	9	0	0	1	1	0	1	1	0	0	0	1	1	0
K25	10	0	0	1	1	0	0	0	1	0	0	1	1	0
K26	+10	0	0	1	1	0	1	1	1	1	0	1	1	0

CD mode (DIRECT PROGRAM key)

KEY NO.	KEY FUNCTION	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13
K16	1	0	0	0	1	0	0	1	0	0	0	0	1	0
K17	2	0	0	0	1	0	1	1	0	0	0	0	1	0
K18	3	0	0	0	1	0	0	0	1	0	0	0	1	0
K19	4	0	0	0	1	0	1	0	1	0	0	0	1	0
K20	5	0	0	0	1	0	0	1	1	0	0	0	1	0
K21	6	0	0	0	1	0	1	1	1	0	0	0	1	0
K22	7	0	0	0	1	0	0	0	0	1	0	0	1	0
K23	8	0	0	0	1	0	1	0	0	1	0	0	1	0
K24	9	0	0	0	1	0	0	1	0	1	0	0	1	0
K25	10	0	0	0	1	0	1	1	0	1	0	0	1	0
K26	+10	0	0	0	1	0	0	0	1	1	0	0	1	0

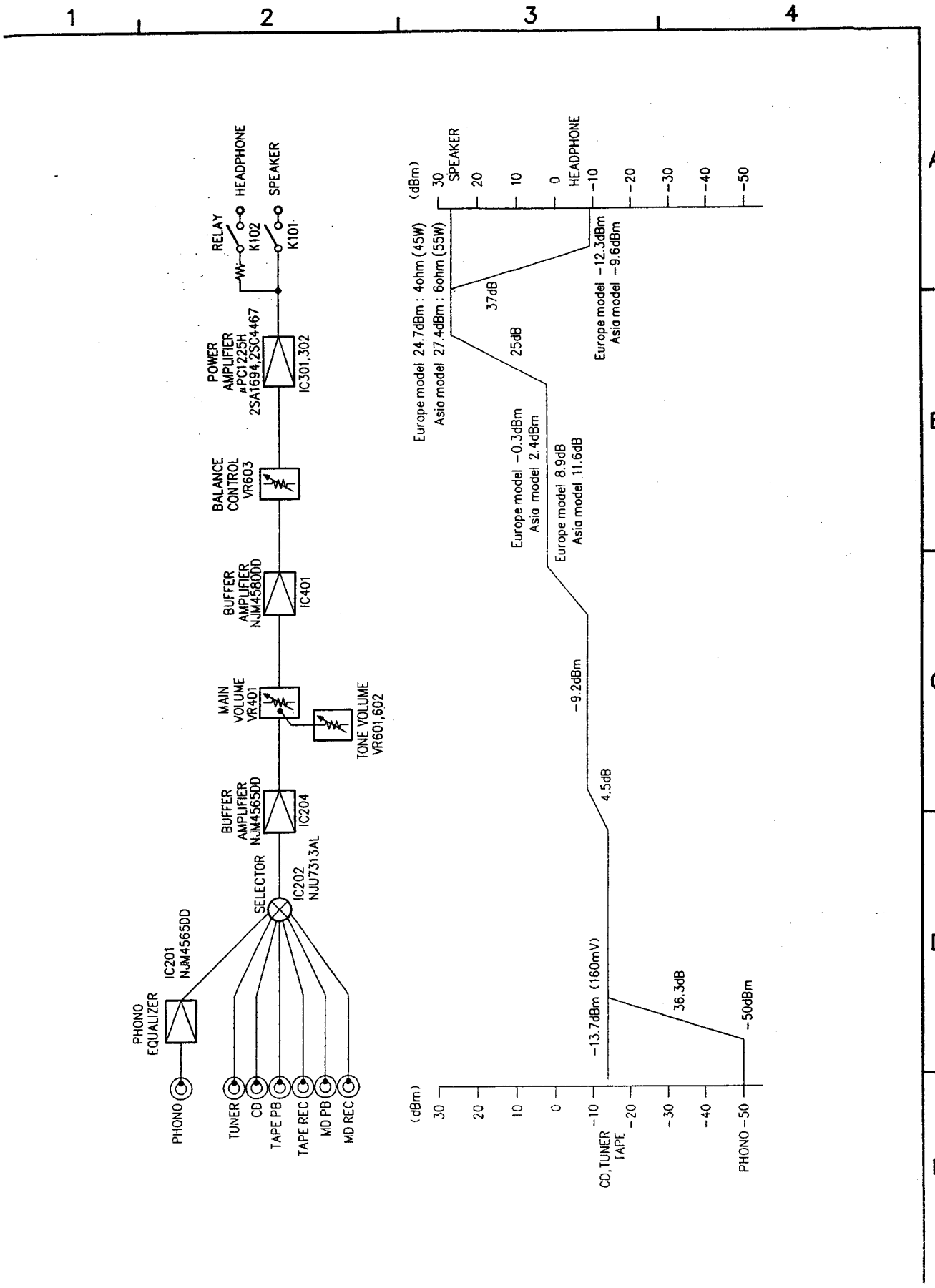
AMPLIFIER SECTION

BLOCK DIAGRAM



LEVEL DIAGRAM

AMPLIFIER SECTION



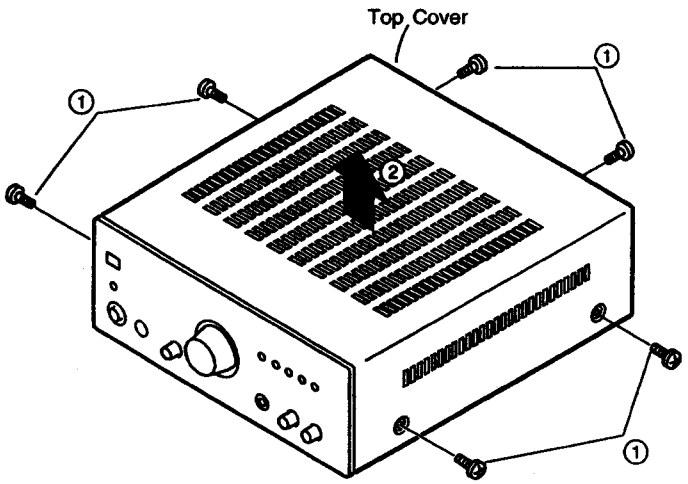
AMPLIFIER SECTION

DISASSEMBLY PROCEDURES

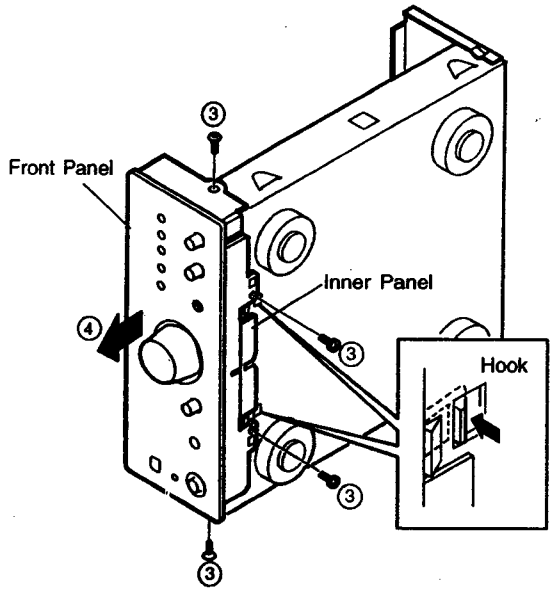
(Assembly is performed in the reverse order.)

1. Top Cover and Front Panel

① Remove 6 screws mounting on the Top Cover.
② Detach the Top Cover in the arrow direction.

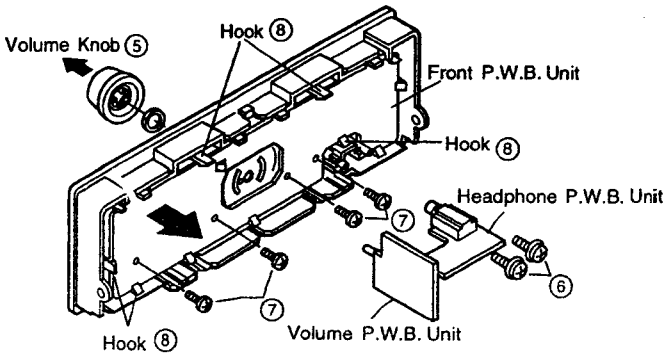


③ Remove 2 each screws fastening the Front Panel on the bottom and both side.
④ While releasing 2 hooks of the Inner panel from the chassis, pull toward arrow direction and detach the Front Panel and the Inner Panel as a whole.



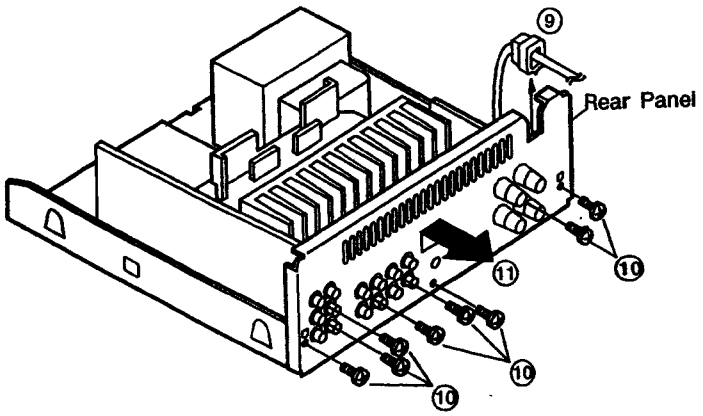
2. Front Unit Ass'y P.W.B. Unit

- **Volume P.W.B. Unit**
  ⑤ Pull out the Volume Knob as shown in figure, and remove nut, then detach the Volume P.W.B. Unit.
- **Headphone P.W.B. Unit**
  ⑥ Remove 2 screws mounting Headphone P.W.B. Unit on the Front Panel, then detach the Headphone P.W.B. Unit.
- **Front P.W.B. Unit**
  ⑦ Remove 4 screws fastening the Front Panel P.W.B. Unit.
  ⑧ While releasing 12 hooks, detach the Front P.W.B. Unit in the arrow direction.



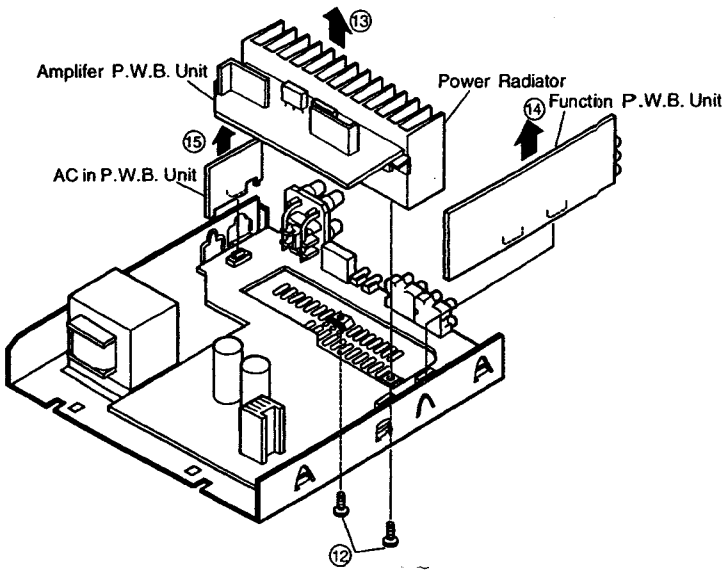
3. Rear Panel

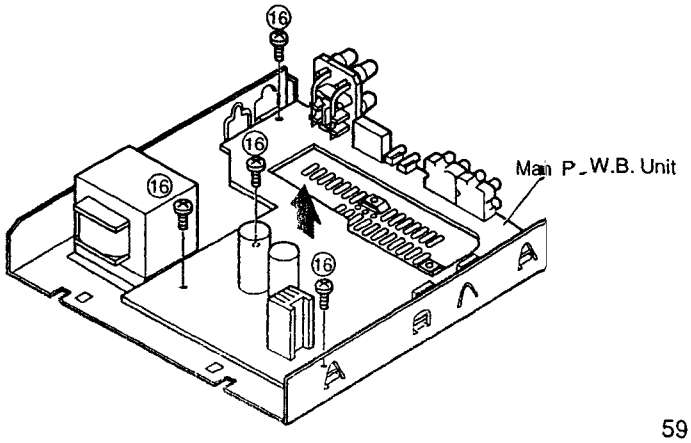
⑨ Remove the Cord Bush from the Rear Panel.
⑩ Remove 8 screws fixing the Rear Panel.
⑪ Detach the Rear Panel in the arrow direction.



4. Main Unit Ass'y P.W.B.

- **Amplifier P.W.B. Unit**
  ⑫ Remove 2 screws mounting the power Radiator on the chassis.
  ⑬ Detach the Amplifier P.W.B. Unit and the Power Radiator as a whole.
- **Function P.W.B. Unit**
  ⑭ Pull out the Function P.W.B. Unit from cennector as shown in figure.
- **AC in P.W.B. Unit**
  ⑮ Pull out the AC in P.W.B. Unit from connector in the arrow direction.
- **Main P.W.B. Unit**
  ⑯ Remove 4 screws fixing the Main P.W.B. Unit, then detach the Main P.W.B.Unit in the arrow direction.

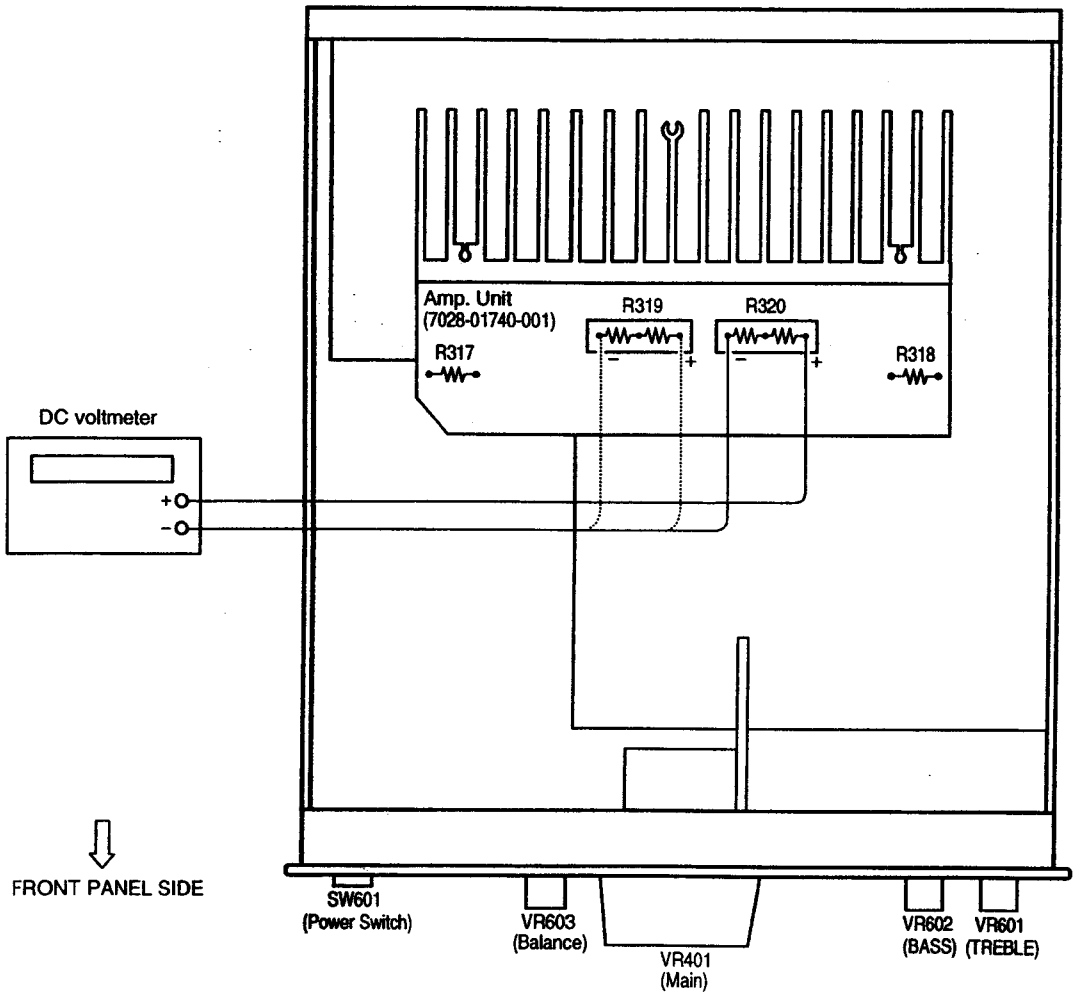




AMPLIFIER SECTION

ADJUSTMENTS

WIRING DIAGRAM



1. Measuring Instruments Required for the Adjustments

- DC voltmeter

2. Preparation

① Place the set in a location having normal usage conditions and avoid places with strong drafts such as near coolers or fans. The operating temperature of the set should be between 15 ℃ and 30 ℃ and the humidity should be normal.

② Set the switches of the set as follows:

- POWER switch → ON (⎓)
- SPEAKER terminals → No load (Do not connect speakers or dummy resistors)
- INPUT terminals → No input

ADJUSTMENTS

① Remove the top cover and connect the DC voltmeter to the test points of the Amp. unit (7028-01740-001)

② Connect the power cable to a rated voltage AC source and set power switch to "ON (⎓)."

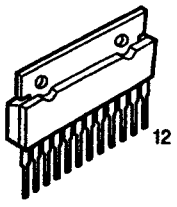
③ After 10 minutes, read the voltmeter and check that the reading is in the range of 2 mV to 40mV (DC).

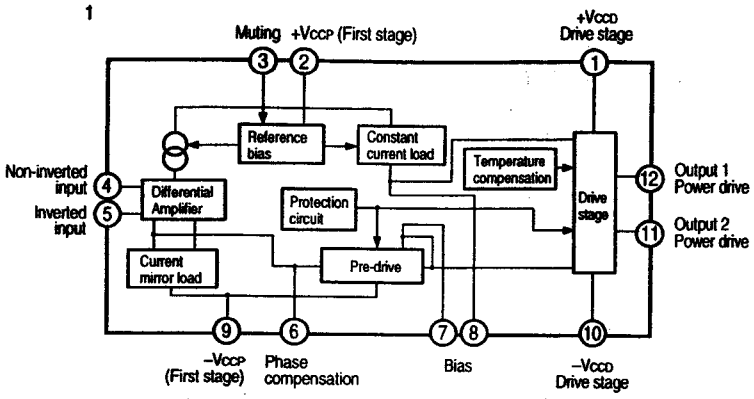
④ When the value read from the voltmeter is 2 mV or less, cut R317 and R318 (2 kohm) shown in the above diagram.

SEMICONDUCTORS

● IC's

μPC1225H(IC301,302)

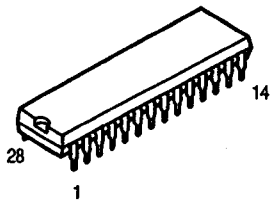


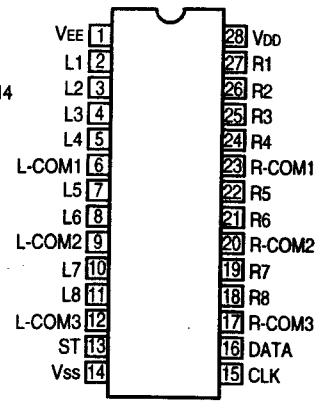


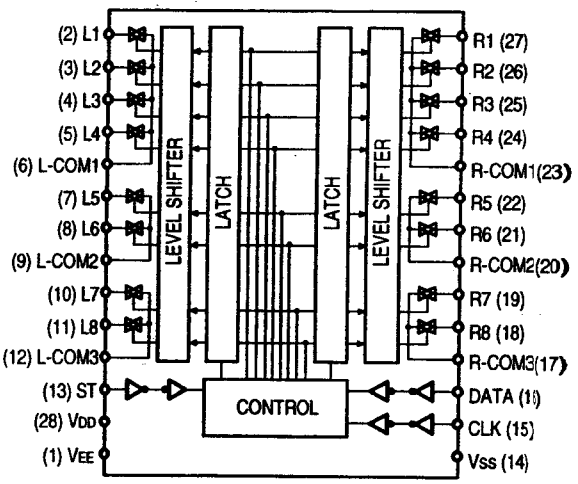
μPC1225H Function Terminal

Pin No.	Function
1	+Vccd (drive stage power supply)
2	+Vccp (pre-drive stage power supply)
3	MUTING
4	INPUT (non-inverting)
5	NFB (inverting)
6	PHASE COMP
7	BIAS
8	BIAS
9	–Vccp (pre-drive stage power supply)
10	–Vccd (drive stage power supply)
11	LOWER OUTPUT
12	UPPER OUTPUT

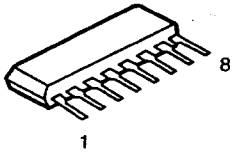
NJU7313AL(IC202)

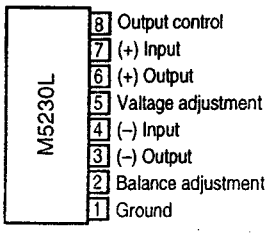


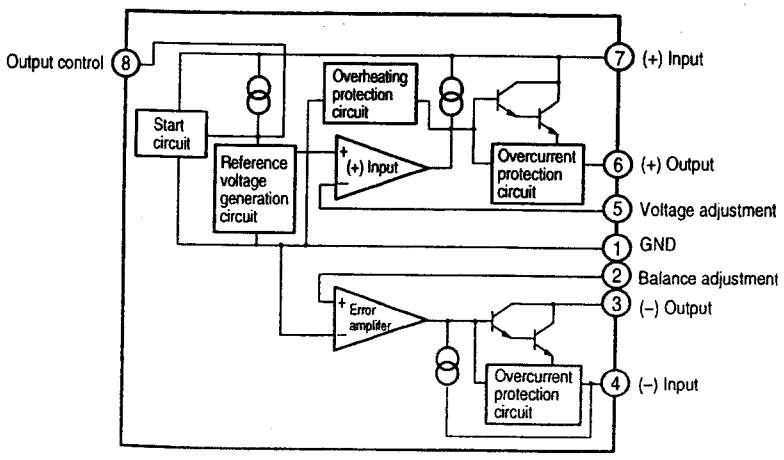




M5230L(IC101)

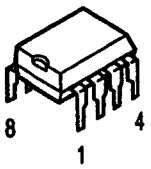


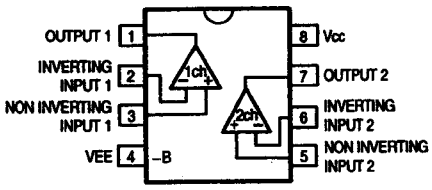




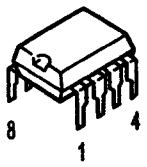
AMPLIFIER SECTION

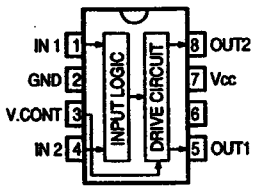
NJM4565DD (IC201, 204)
NJM4580DD (IC401)





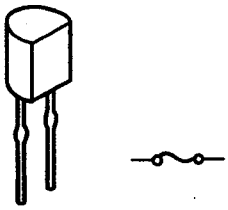
LB1639
(IC402)





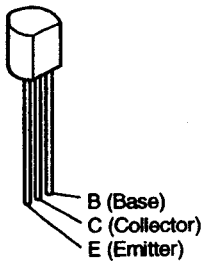
● IC PROTECTOR

ICP-N15
(IC102~104)

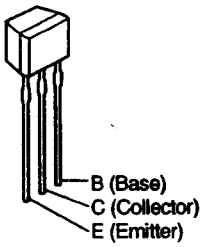


● TRANSISTORS

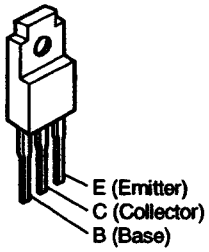
KTA1266 (Y)
KTC3198 (Y)
KSA992 (F)
KSC1845 (F)
KTC2878 (A/B)



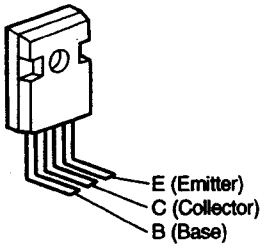
2SA933S (S)
2SC1740S (R)
2SC1740S (E)



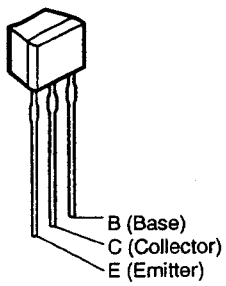
KTB1366 (Y)
KTD2058 (Y)



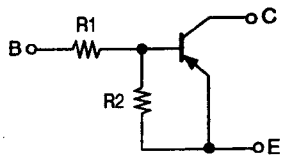
2SA1694P (O/P/Y)
2SC4467P (O/P/Y)



DTA144ES (PNP)
DTC144ES (NPN)

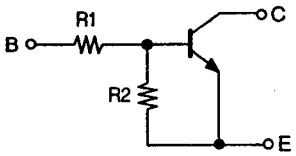


PNP Type
DTA ES Series



	R1	R2
DTA144ES	47 kohm	47 kohm

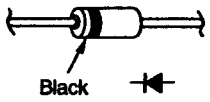
NPN Type
DTC ES Series



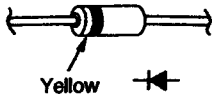
	R1	R2
DTC144ES	47 kohm	47 kohm

● DIODES (including LED)

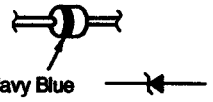
1N4002A



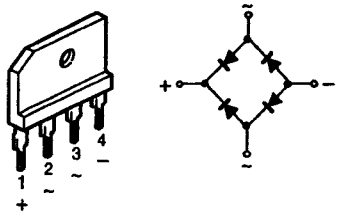
1SS131



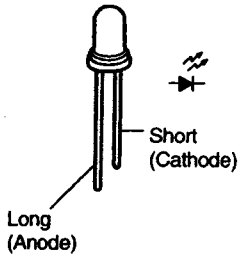
MTZJ5.6B MTZJ13B:Europe model
MTZJ6.2B MTZJ16B:Asia model
MTZJ12B



D3SB20/DBF40C
(D113)

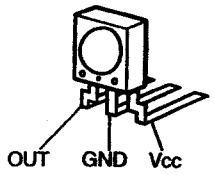


SLR34DC3
(D601~606) Orange



● INFRARED REMOTE CONTROL SENSOR

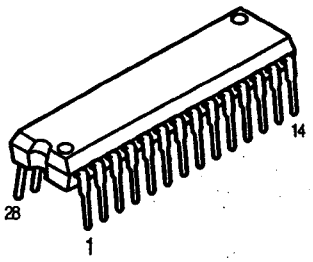
SBX8025L
(A601)

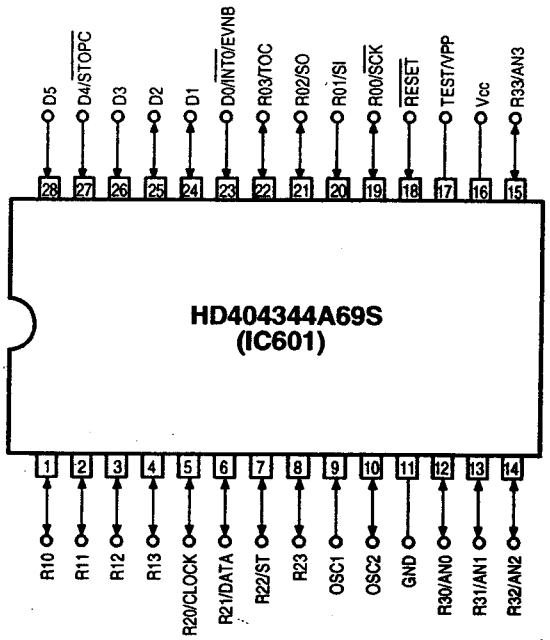


AMPLIFIER SECTION

MICROPROCESSOR DOCUMENTATION

HD404344A69S
(IC601)

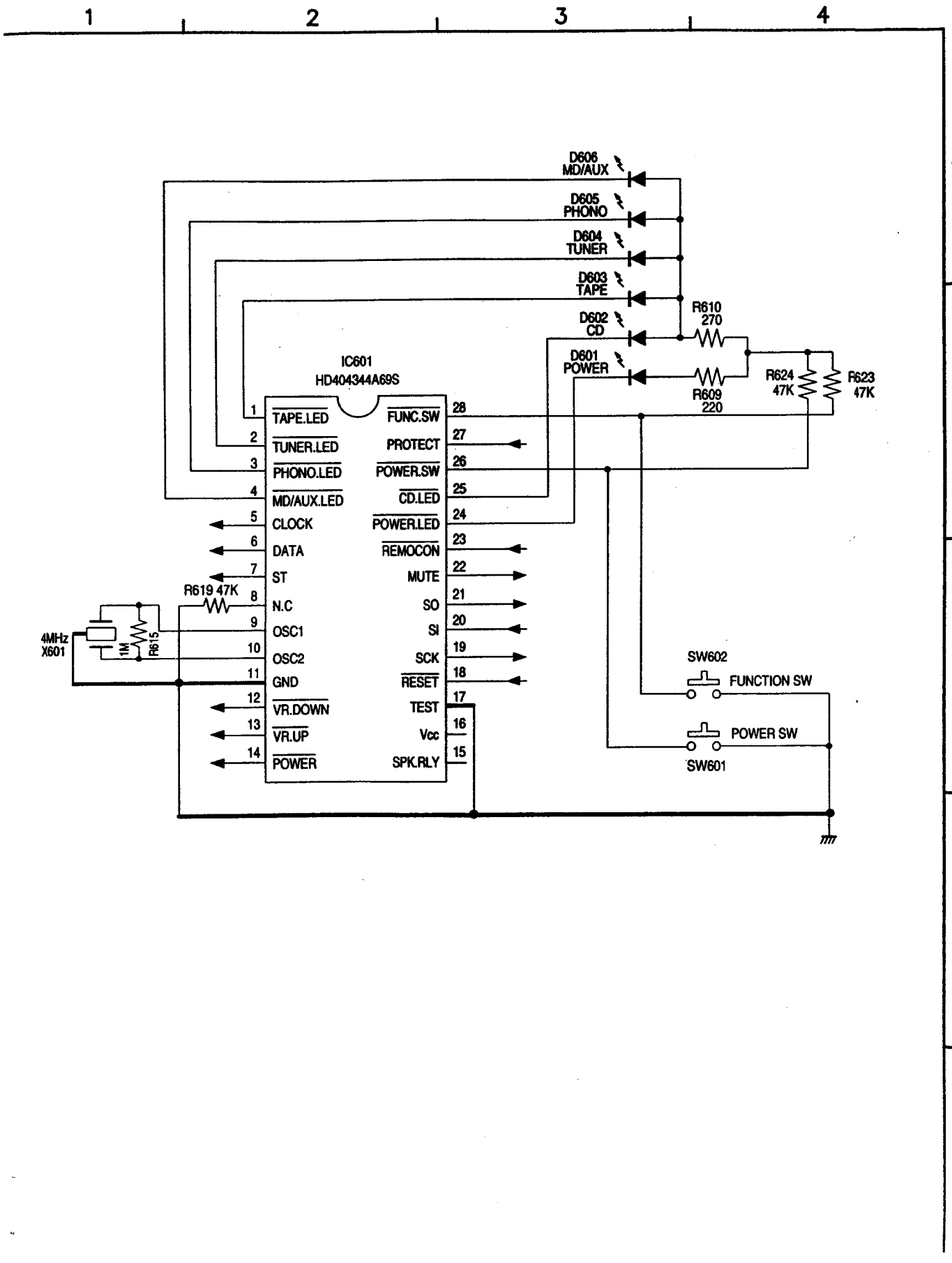




HD404344A69S Terminal Function

No.	Terminal Name	Port Name	I/O	Ini	ACT	Function
1	R10	TAPE LED	O	H	L	LED "TAPE" indication signal. ON at "L"
2	R11	TUNER LED	O	H	L	LED "TUNER" indication signal. ON at "L"
3	R12	PHONO LED	O	H	L	LED "PHONE" indication signal. ON at "L"
4	R13	MD/AUX LED	O	H	L	LED "MD/AUX" indication signal. ON at "L"
5	R20	CLOCK	O	H	—	Serial clock output for IC202.
6	R21	DATA	O	H	—	Serial data output for IC202.
7	R22	ST.	O	H	—	Chip enable signal.
8	R23	N.C.	O	—	—	Fix to GND.
9	OSC1	OSC IN	I	—	—	Oscillation circuit input.
10	OSC2	OSC OUT	O	—	—	Oscillation circuit output.
11	GND	GND	—	—	—	GND for digital circuit.
12	R30/AN0	VR. DOWN	O	H	L	At volume down, output signal.
13	R31/AN1	VR. UP	O	H	L	At volume up, output signal.
14	R32/AN2	POWER	O	H	L	Control signal of IC101 (±15V), IC301/302 (MUTE).
15	R33/AN3	SPK RELAY	O	L	H	ON/OFF control signal of speaker relay.
16	VCC	5V	—	—	—	+5V power supply for digital circuit.
17	TEST/VPP	NC	—	—	—	Fix to GND.
18	RESET	RESET	I	—	L	Reset input signal.
19	R00/SCK	SCK	O	H	L	DENON bus communication data clock signal.
20	R01/SI	SI	I	H	—	DENON bus communication data input signal.
21	R02/SO	SO	O	H	—	DENON bus communication data output signal.
22	R03/TOC	MUTE	O	L	H	MUTE output signal.
23	D0/INT0/EVNB	REMOCON	I	H	L	Remote control input signal.
24	D1	POWER. LED	O	H	L	LED "POWER" indication signal. ON at "L"
25	D2	CD. LED	O	H	L	LED "CD" indication signal. ON at "L"
26	D3	POWER SW.	I	H	L	Power switch signal.
27	D4/STOPC	PROTECT	I	L	H	Over flow current detection input signal.
28	D5	FUNC. SW	I	H	L	Function switch signal.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM



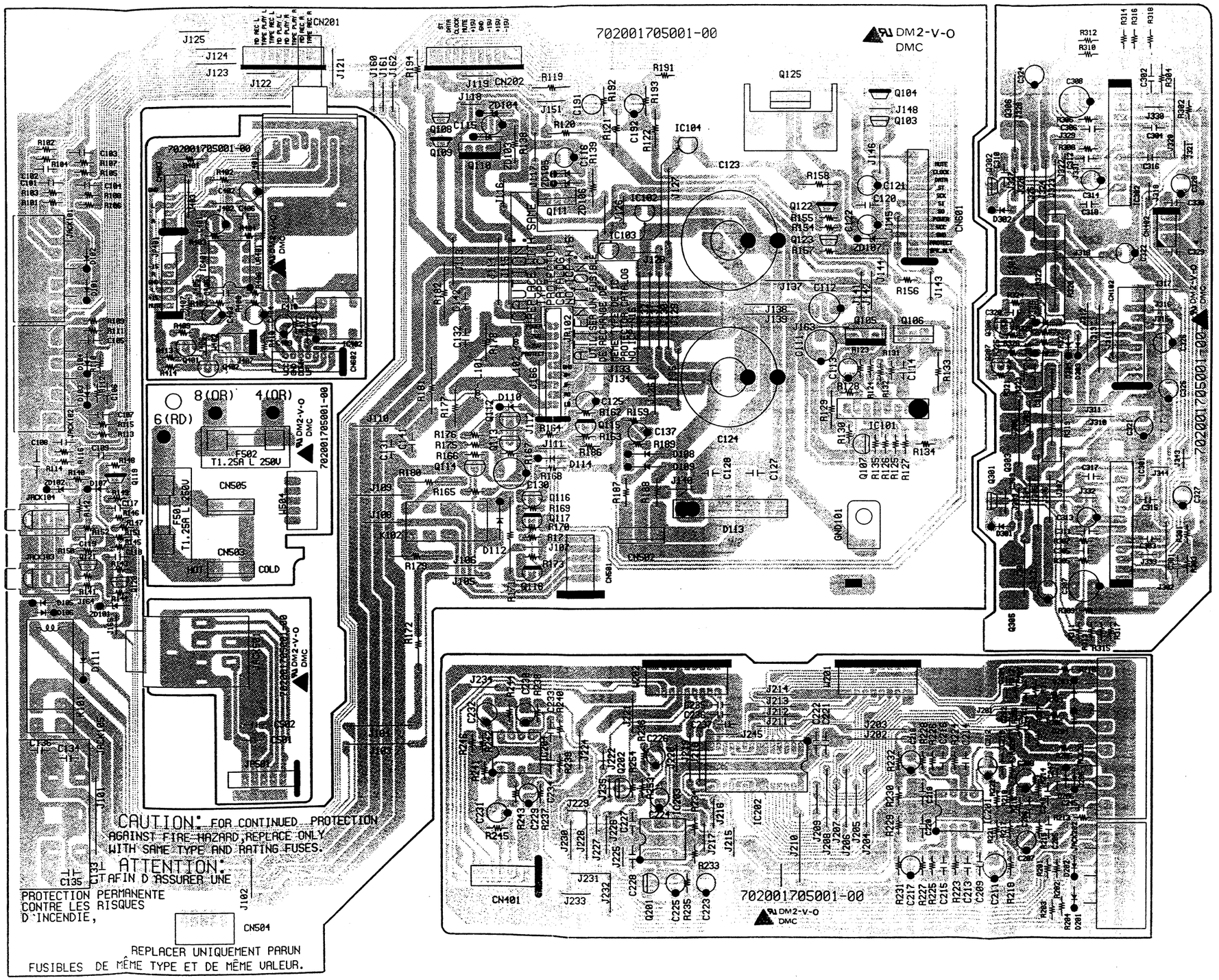
AMPLIFIER SECTION

PRINTED WIRING BOARD

MAIN UNIT ASS'Y

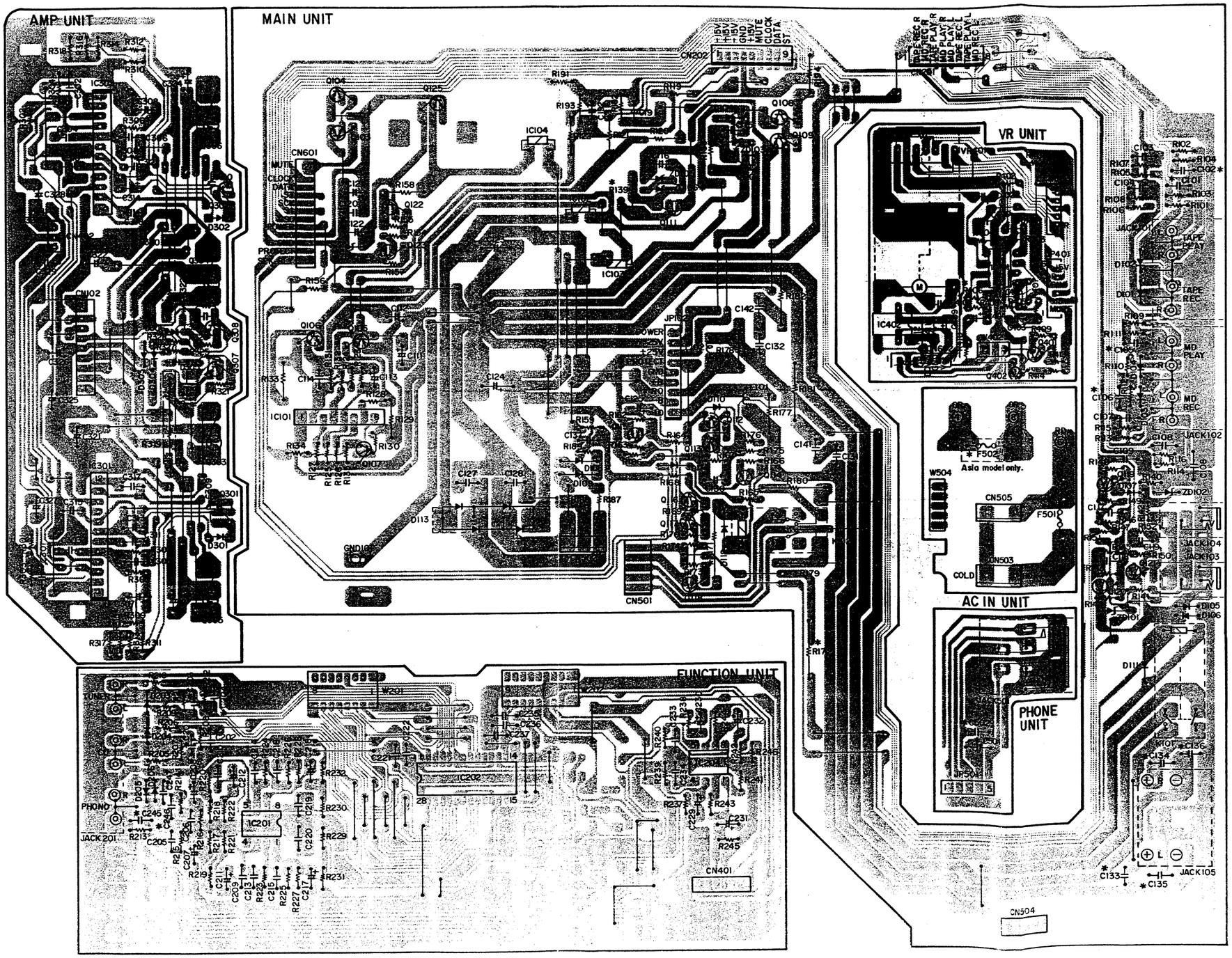
Component Side

MAIN UNIT ASS'Y	
–1	Main Unit
–2	Volume Unit
–3	Headphone Unit
–4	AC in Unit
–5	Function Unit
–6	Amp. Unit



DENO-00297 / Druck:13

Pattern Side



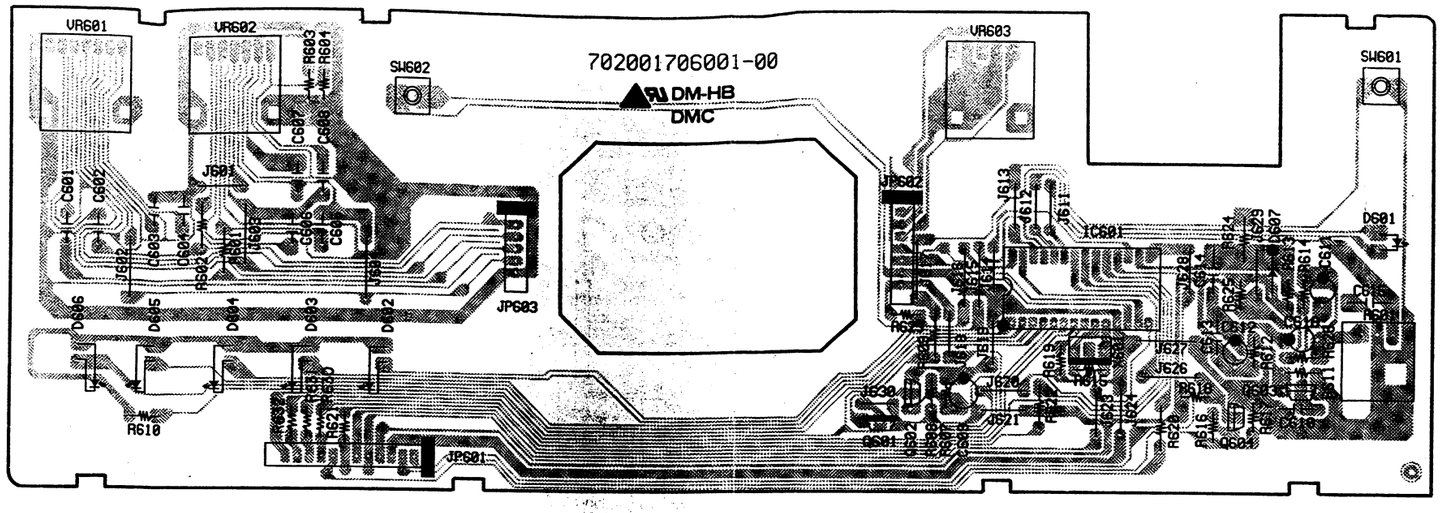
1 2 3 4 5 6 7 8

A B C D E

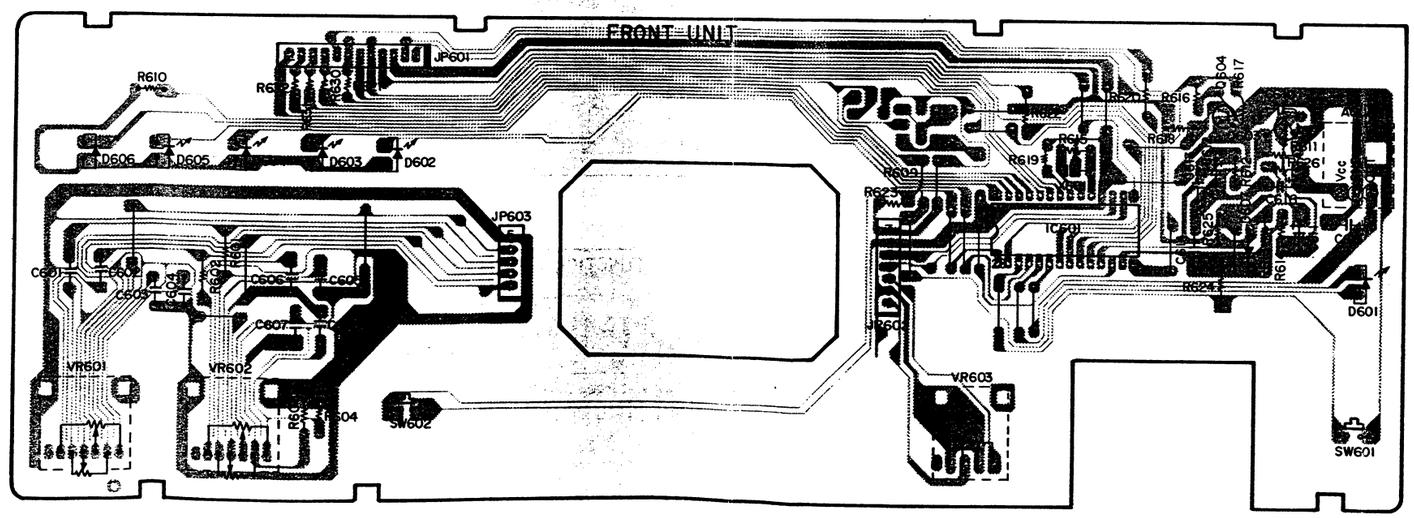
AMPLIFIER SECTION

FRONT UNIT ASS'Y

Component Side



Pattern Side



NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ■ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

• Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

• Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

• Capacity (electrolyte only)

2 2 2 ⇒ 2200μF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: μF.

• Capacity (except electrolyte)

2 2 2 ⇒ 2200pF = 0.0022μF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dieelectric strength value.

P.W.B. UNIT ASS'Y PARTS LIST

AMPLIFIER SECTION

MAIN UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
IC101	263 0646 007	IC M5230L	Linear regulator
⚠ IC102–104	268 0073 905	IC ICP-N15	IC protector
IC201	960 0013 100	IC NJM4565DD	Linear ope. amp
IC202	960 0005 503	IC NJU7313AL	Logic IC
IC204	960 0013 100	IC NJM4565DD	Linear ope. amp
IC301,302	263 0206 007	IC μPC1225H	Linear power
IC401	LA1 050K 020	IC NJM4580DD	Low noise ope.amp
IC402	263 0476 002	IC LB1639	Linear driver
Q103	269 0040 009	Transistor DTC144ES	Built in resistor
Q104	269 0093 904	Transistor DTA144ES	Built in resistor
Q105	960 0004 805	Transistor KTB1366(Y)	
Q106	960 0004 902	Transistor KTD2058(Y)	
Q107	960 0005 202	Transistor KTC3198(Y)	
Q108	269 0040 009	Transistor DTC144ES	Built in resistor
Q109	269 0093 904	Transistor DTA144ES	Built in resistor
Q110	960 0004 805	Transistor KTB1366(Y)	
Q111	960 0004 902	Transistor KTD2058(Y)	
Q112–114	960 0005 202	Transistor KTC3198(Y)	
Q115	271 0111 009	Transistor KSA992(F)	
Q116	960 0005 202	Transistor KTC3198(Y)	
Q117,118	960 0005 105	Transistor KTA1266(Y)	
Q119	271 0192 002	Transistor 2SA933S(S)	
Q120,121	273 0178 022	Transistor 2SC1740S(R)	
Q122	271 0192 002	Transistor 2SA933S(S)	
Q123	273 0178 022	Transistor 2SC1740S(R)	
Q125	960 0004 902	Transistor KTD2058(Y)	
Q301,302	273 0388 906	Transistor 2SC1740S(E)	
⚠ Q303,304	960 0003 304	Transistor 2SC1740S(R)	
⚠ Q305,306	960 0003 207	Transistor 2SA933S(S)	
Q307,308	273 0207 003	Transistor KSC1845(F)	
Q401,402	273 0253 015	Transistor KTC2878(A/B)	
D101–107	960 0031 409	Diode 1SS131	
D108,109	916 0053 008	Diode 1N4002A	
D110	960 0031 409	Diode 1SS131	
D111,112	916 0053 008	Diode 1N4002A	
⚠ D113	960 0039 508	Diode D3SB20	Bridge
⚠ or	—	Diode DBF40C	Bridge
D114	960 0031 409	Diode 1SS131	
D203–206	960 0031 409	Diode 1SS131	
D301–306	960 0031 409	Diode 1SS131	

Ref No.	Part No.	Part Name	Remarks
ZD101,102	9H3 0000 509	Zener diode MTZJ6.2B	6.2V
ZD103	960 0037 209	Zener diode MTZJ13B	13V Europe model
ZD103	9H3 0000 305	Zener diode MTZJ16B	16V Asia model
ZD104,105	9H3 0000 409	Zener diode MTZJ12B	12V
ZD106	960 0037 209	Zener diode MTZJ13B	13V Europe model
ZD106	9H3 0000 305	Zener diode MTZJ16B	16V Asia model
ZD107	LA2 60C0 058	Zener diode MTZJ5.6B	5.6V
RESISTORS			
VR401	960 0002 603	Variable resistor 100 Kohn	Main
R101,102	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R103,104	241 2405 958	Carbon film 820 kohm 1/6W	RD14B2E824J(5)
R105,106	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R107,108	241 2405 958	Carbon film 820 kohm 1/6W	RD14B2E824J(5)
R109,110	241 2400 940	Carbon film 6.2 kohm 1/6W	RD14B2E622J(5)
R111,112	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R113,114	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R115,116	241 2405 958	Carbon film 820 kohm 1/6W	RD14B2E824J(5)
⚠ R119,120	241 2316 089	Fusible 560 ohm 1/4W (FR)	RD14B2E561GFRF
⚠ R121,122	241 2313 053	Fusible 1 kohm 1/4W (FR)	RD14B2E102GFRF
R123	241 2402 919	Carbon film 33 kohm 1/6W	RD14B2E333J(5)
R124	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
R125	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R126,127	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R128	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
⚠ R129	241 2313 037	Fusible 220 ohm 1/4W (FR)	RD14B2E221GFRF
R130	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R131	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
R132	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
⚠ R133	241 2313 037	Fusible 220 ohm 1/4W (FR)	RD14B2E221GFRF
R134,135	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
⚠ R136,137	960 9001 618	Fusible 1.5 kohm 1/4W (FR) Europe model	RD14B2E152GFRF
⚠ R136,137	241 2315 006	Fusible 2.2 kohm 1/4W (FR) Asia model	RD14B2E222GFRF
R140	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R141	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R142	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R143,144	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R145	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R146	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R147	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R148	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R149–151	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R152,153	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R154–157	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
⚠ R158	960 9001 760	Fusible 4.7 kohm 1/4W (FR) Europe model	RD14B2E472GFRF

AMPLIFIER SECTION

Ref. No.	Part No.	Part Name	Remarks
⚠ R158	960 9001 676	Fusible 5.6 kohm 1/4W (FR)	RD14B2E562GFRF Asia model
R159	241 2403 073	Carbon film 150 kohm 1/6W	RD14B2E154J(5)
R162	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R163	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R164~167	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R168	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
R169,170	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
[redacted]			
R173,174	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R175,176	241 2402 919	Carbon film 33 kohm 1/6W	RD14B2E333J(5)
R177,178	241 2036 000	Carbon film 4.7 ohm 1/4W	RD14B2E4R7J
[redacted]			
R186	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R187~189	241 2400 953	Carbon film 6.8 kohm 1/6W	RD14B2E682J(5)
R191	241 2400 953	Carbon film 6.8 kohm 1/6W	RD14B2E682J(5)
R192	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R193	241 2404 991	Carbon film 470 kohm 1/6W	RD14B2E474J(5)
R194	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R205,206	241 2400 940	Carbon film 6.2 kohm 1/6W	RD14B2E622J(5)
R207,208	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R209,210	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R211,212	241 2405 958	Carbon film 820 kohm 1/6W	RD14B2E824J(5)
R213,214	241 2397 066	Carbon film 390 ohm 1/6W	RD14B2E391J(5)
R215,216	241 2402 993	Carbon film 68 kohm 1/6W	RD14B2E683J(5)
R217,218	241 2403 073	Carbon film 150 kohm 1/6W	RD14B2E154J(5)
R219,220	241 2395 945	Carbon film 47 ohm 1/6W	RD14B2E470J(5)
R221,222	241 2392 906	Carbon film 430 ohm 1/6W	RD14B2E431J(5)
R223,224	241 2404 030	Carbon film 270 kohm 1/6W	RD14B2E274J(5)
R225,226	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R227,228	241 2394 069	Carbon film 22 ohm 1/6W	RD14B2E220J(5)
R229,230	241 2404 991	Carbon film 470 kohm 1/6W	RD14B2E474J(5)
R231,232	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R237,238	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R239,240	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R241,242	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R243,244	241 2400 953	Carbon film 6.8 kohm 1/6W	RD14B2E682J(5)
R245,246	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R301,302	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R303,304	241 2402 977	Carbon film 56 kohm 1/6W	RD14B2E563J(5)

Ref. No.	Part No.	Part Name	Remarks
R305,306	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R307,308	241 2402 977	Carbon film 56 kohm 1/6W	RD14B2E563J(5)
R309,310	241 2403 015	Carbon film 82 kohm 1/6W	RD14B2E823J(5)
R311,312	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R313,314	241 2397 972	Carbon film 470 ohm 1/6W	RD14B2E471J(5)
R315,316	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R317,318	241 2399 022	Carbon film 2 kohm 1/6W	RD14B2E202J(5)
⚠ R319,320	243 2061 013	Cement resist. 0.22ohm x2 3W	[illegible]
R321,322	241 2399 909	Carbon film 1.6 kohm 1/6W	RD14B2E162J(5)
R323,324	241 2399 912	Carbon film 1.8 kohm 1/6W	RD14B2E182J(5)
R325,326	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R327,328	241 2401 059	Carbon film 18 kohm 1/6W	RD14B2E183J(5)
R401,402	241 2401 004	Carbon film 11 kohm 1/6W	RD14B2E113J(5)
R403,404	241 2404 991	Carbon film 470 kohm 1/6W	RD14B2E474J(5)
R405,406	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5) Europe model
R405,406	241 2399 954	Carbon film 2.7 kohm 1/6W	RD14B2E272J(5) Asia model
R407,408	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R409,410	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R411,412	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R413,414	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
CAPACITORS			
C101,102	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K Europe model only
C103,104	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K
C105,106	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K Europe model only
C107,108	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K
C109	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C111,112	254 4256 046	Electrolytic 100 µF/25V	CE04W1E101M
C113	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C114	255 1251 940	Film cap. 4700 pF/50V	CQ92M1H472J
C115,116	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C117	HMA 1000 159	Ceramic cap. 100 pF/50V	CK14B1H101K
C118,119	253 1194 959	Ceramic cap. 1000 pF/50V	CK14B1H102K
C120	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C121	254 4254 019	Electrolytic 22 µF/16V	CE04W1C220M
C122	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C123,124	254 6147 001	Electrolytic 6800 µF/50V	CE04W1H682MDL
C125	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
⚠ C127,128	960 9001 100	Ceramic cap. 0.01 µF/[illegible]	[illegible]
C130	254 4250 042	Electrolytic 330 µF/6.3V	CE04W0J331M
C131,132	255 4224 903	Film cap. 0.047 µF/50V	CQ92M1H473J MRZ
C133,134	255 1251 940	Film cap. 4700 pF/50V	CQ92M1H472J MRZ Europe model only
C135,136	253 9030 044	Ceramic cap. 4700 pF/25V	CK45=1E472K Europe model only

Ref. No.	Part No.	Part Name	Remarks
C137	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C141,142	255 4224 903	Film cap. 0.047 µF/50V	CQ92M1H473J MRZ
C191	254 3056 920	Electrolytic 2.2 µF/50V	CE04D1H2R2MBP(bipole)
C201~204	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K Europe model only
C205,206	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K
C207,208	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C209,210	HMA 1000 162	Ceramic cap. 330 pF/50V	CK14B1H331K Europe model
C209,210	253 1194 917	Ceramic cap. 470 pF/50V	CK14B1H471K Asia model
C211,212	254 4252 040	Electrolytic 220 µF/10V	CE04W1A221M
C213,214	255 4223 933	Film cap. 0.012 µF/50V	CQ92M1H123J MRZ
C215,216	255 4222 963	Film cap. 3300 pF/50V	CQ92M1H332J MRZ
C217,218	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
C219~222	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C229~232	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C233,234	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C235,236	HMA 1000 159	Ceramic cap. 100 pF/50V	CK14B1H101K
C237	253 1194 959	Ceramic cap. 1000 pF/50V	CK14B1H102K
C245,246	HMA 1000 159	Ceramic cap. 100 pF/50V	CK14B1H101K Europe model only
C247	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C301,302	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K
C303,304	HMA 1000 159	Ceramic cap. 100 pF/50V	CK14B1H101K
C305,306	960 0039 304	Ceramic cap. 4.7 pF/50V	CC45CH1H4R7C (Temp.)
C307,308	254 4252 037	Electrolytic 100 µF/10V	CE04W1A101M
C309,310	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C311,312	253 3617 007	Ceramic cap. 39 pF/50V	CC45SL1H390J
C313,314	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
⚠ C315,316	253 4297 002	Ceramic cap. 150 pF/500V	CC45SL2H151J
C317,318	255 1138 005	Film cap. 0.033 µF/50V	CQ92M1H333J
C319,320	253 1175 907	Ceramic cap. 0.022 µF/25V	CK14F1E223Z
C321~324	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C325~328	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C329,330	253 1194 917	Ceramic cap. 470 pF/50V	CK14B1H471K
C401,402	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C403,404	254 4260 087	Electrolytic 10 µF/50V	CE04W1H100M
C405,406	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C409	254 4252 024	Electrolytic 47 µF/10V	CE04W1A470M
C410	255 1134 025	Film cap. 0.01 µF/50V	CQ92M1H103J
C501,502	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K Europe model only

Ref. No.	Part No.	Part Name	Remarks	Q'ty
OTHER PARTS				
	—	(P.W.board)		(1)
L101,102	960 0005 008	Inductor 0.15 µH	D330R1500000	2
JACK101, 102	960 0004 504	4P pin jack	G60204004500	2
JACK103, 104	960 0004 407	Mini jack ϕ3.5	G40103110201	2
JACK105	960 0004 601	4P speaker terminal	G61204204020	1
JACK201	960 0005 406	6P pin jack	G60306004602	1
JACK501	960 0002 904	Headphone jack ϕ6.5	G40220780060	1
⚠ F501	960 0037 102	Fuse T2.5 A/250V	G65025225103 Asia model only	1
⚠ F501	960 0037 005	Fuse 1.25 A/250V	G65012225102 Europe model only	1
⚠ F502	960 0037 005	Fuse 1.25 A/250V	G65012225102 Asia model only	1
	960 0005 804	Fuse clip	for F501 Europe model	2
	960 0005 804	Fuse clip	for F501,502 Asia model	4
	—	Fuse label	for F501 Europe model	1
⚠ SW501	960 0036 608	Rotary switch (Vol.sel.switch)	G12037312000 Asia model only	1
K101	960 0036 802	Relay (DH24-D2-OS(M))	G68000019001	1
K102	960 0004 708	Relay (DS2Y-S-DC12V)	G68000025001	1
CN102	960 0000 605	9 P FP cable	L13206091001	1
CN201	—	8P connector base	L10120080002	1
CN202	—	9P connector base	L10120009001	1
CN401	—	6P wire trap	L14152147061	1
CN402	—	3P wire holder	L10252680301	1
CN501	—	5P FP cable	L13206051001	1
CN502	—	3P connector base	L10439603001	1
⚠ CN503	—	2P connector base	L10803961201	1
CN504	—	Connector base	L10205100002	1
⚠ CN505	—	2P connector base	L10803961201	1
CN601	—	12P wire trap	L14152147121	1
CN602	—	7P wire trap	L14152147071	1
CN603	—	5P wire trap	L14152147051	1
W201	—	8P connector base	L10120080001	1
W202	—	9P connector base	L10120009002	1

FRONT P.W.B. UNIT ASS'Y

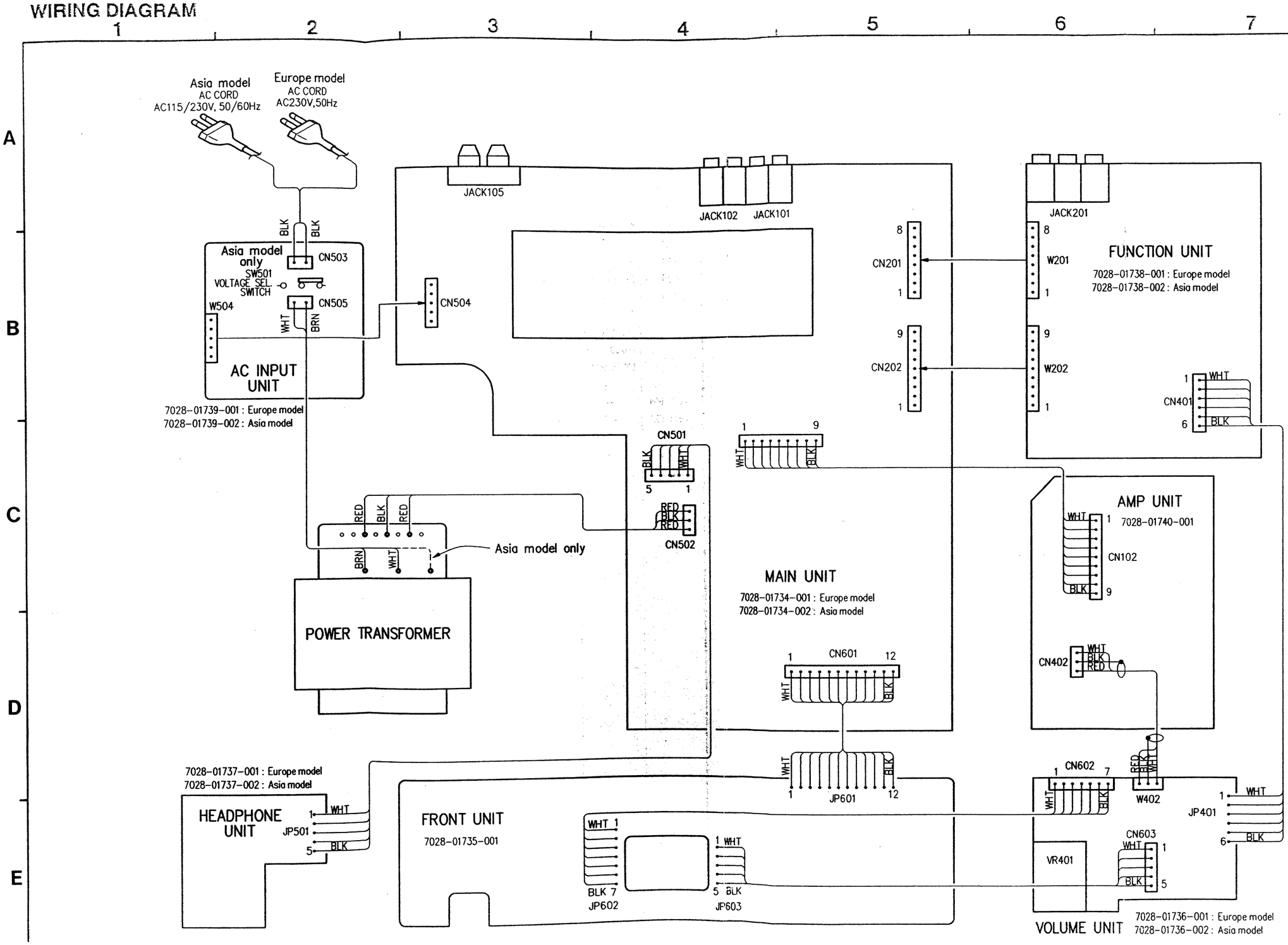
Ref. No.	Part No.	Part Name	Remarks	
W402	—	3P wire 140 mm	L00007616001	1
W504	—	Connector base	L10205100003	1
J101–146	—	Jumper wire	L40200002002	46
J148	—	Jumper wire	L40200002002	1
J151	—	Jumper wire	L40200002002	1
J160–166	—	Jumper wire	L40200002002	7
J201–214	—	Jumper wire	L40200002002	14
J218–221	—	Jumper wire	L40200002002	4
J224	—	Jumper wire	L40200002002	1
J228–232	—	Jumper wire	L40200002002	5
J234	—	Jumper wire	L40200002002	1
J245	—	Jumper wire	L40200002002	1
J301–333	—	Jumper wire	L40200002002	33
J343,344	—	Jumper wire	L40200002002	2
J401–403	—	Jumper wire	L40200002002	3
J405–407	—	Jumper wire	L40200002002	3
JP102	—	9 P cable holder	L11251052090	1
JP102	960 0002 726	9 P cable 130mm Black	L32013109241	1
JP401	—	6 P cable holder	L11151048061	1
JP401	960 0002 700	6 P flat cable 160 mm Black	L32116106260	1
JP501	—	5 P cable holder	L11251052050	1
JP501	960 0002 713	5 P flat cable 160 mm Black	L32016105241	1
GND 101	960 0036 909	Earth terminal	379000012000	1
	—	Heat sink Ass'y	212800026001	1
	—	Heat sink	212002002801	2
	—	Heat sink	212002001801	1
	960 0000 401	Bracket	401002005601	2
	960 9000 114	Special screw 3x8	for heat sink	7
	960 9000 185	Screw 3x14	With w,spring w. for Q303–306	4
	—	Clamp 2x40/wire	433000012000	1

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
IC601	960 0001 905	IC HD404344A69S	Microprocessor
Q603,604	273 0178 022	Transistor 2SC1740S(R)	
D601–606	960 0002 001	LED SLR34DC3	Orange
D607	960 0031 409	Diode 1SS131	
A601	960 0001 808	Remocon module SBX8025L	E94000013010
RESISTORS			
VR601,602	960 0001 701	Variable resistor 100 Kohn x 2	Tone
VR603	960 0001 604	Variable resistor 200 Kohn	Balance
R601,602	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R603,604	241 2399 912	Carbon film 1.8 kohm 1/6W	RD14B2E182J(5)
R609	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R610	241 2397 901	Carbon film 270 ohm 1/6W	RD14B2E271J(5)
R611	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
R612	241 2403 918	Carbon film 82 kohm 1/6W	RD14B2E823J(5)
R613	241 2405 000	Carbon film 510 kohm 1/6W	RD14B2E514J(5)
R614	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R615	241 2405 974	Carbon film 1 Mohm 1/6W	RD14B2E105J(5)
R616	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R617–619	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R620–622	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R623–625	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R626	241 2394 069	Carbon film 22 ohm 1/6W	RD14B2E220J(5)
R630–632	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
CAPACITORS			
C601,602	255 1251 982	Film cap. 5600 pF/50V	CQ92M1H562J MRZ
C603–606	255 4223 988	Film cap. 0.033 µF/50V	CQ92M1H333J MRZ
C607,608	256 1035 004	Metalized 0.18 µF/50V	CF93A1H184J
C610	AVC 7700 133	Ceramic cap. 0.01 µF/16V	CK14Y1C103M
C611	254 4260 003	Electrolytic 0.1 µF/50V	CE04W1H0R1M
C612	254 4252 037	Electrolytic 100 µF/10V	CE04W1A101M
C613	253 1193 976	Ceramic cap. 220 pF/50V	CK14B1H221K
C614	253 1197 901	Ceramic cap. 0.047 µF/50V	CK14F1H473Z
C615	253 1194 917	Ceramic cap. 470 pF/50V	CK14B1H471K
C616	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M

Ref No.	Part No.	Part Name	Remark
OTHER PARTS			
	—	(P.W.board)	—
SW601,602	DCD 2150 426	Tact switch	G180O0027000
X601	399 9018 003	Ceramic resonator CST4.00MGW	E8304R000001
JP601	—	12 P cable holder	L11151048121
JP601	960 0000 634	12 P flat cable 120 mm Black	L32112112261
JP602	—	7 P cable holder	L11151048071
JP602	960 0000 621	7 P flat cable 120 mm Black	L32112107261
JP603	960 0000 618	5 P flat cable 110 mm Black	L32111105261
JP603	—	5 P cable holder	L11151048051
	960 0002 108	LED support	407002003501
	960 0002 205	Sensor holder	432002016101
	960 0002 302	LED holder	432002017101
J601–604	—	Jumper wire	L40200002002
J611–621	—	Jumper wire	L40200002002
J623,624	—	Jumper wire	L40200002002
J626–630	—	Jumper wire	L40200002002

AMPLIFIER SECTION

WIRING DIAGRAM

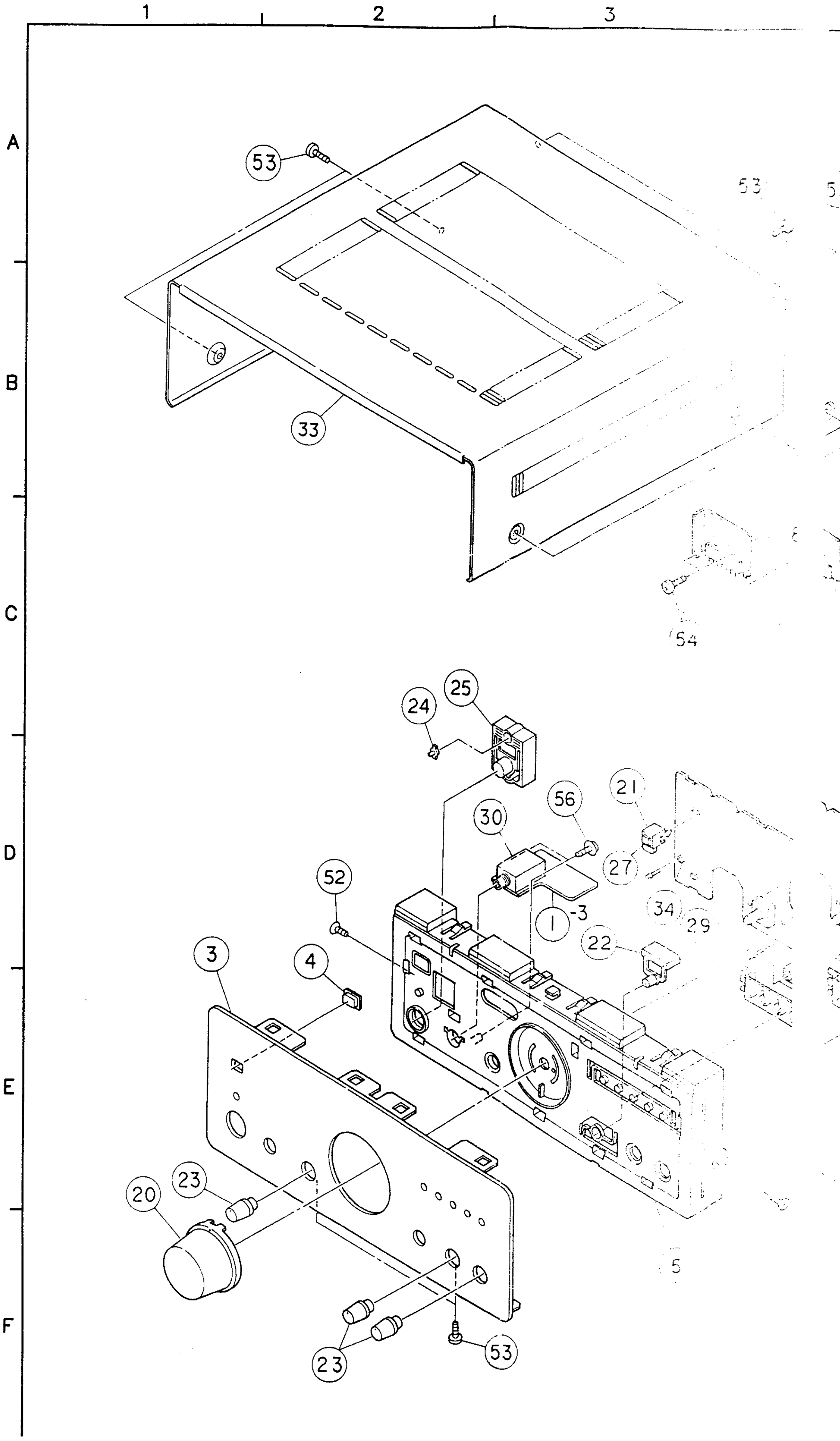


PARTS LIST OF EXPLODED VIEW

PRE-MAIN AMP SECTION (UPA-F07)

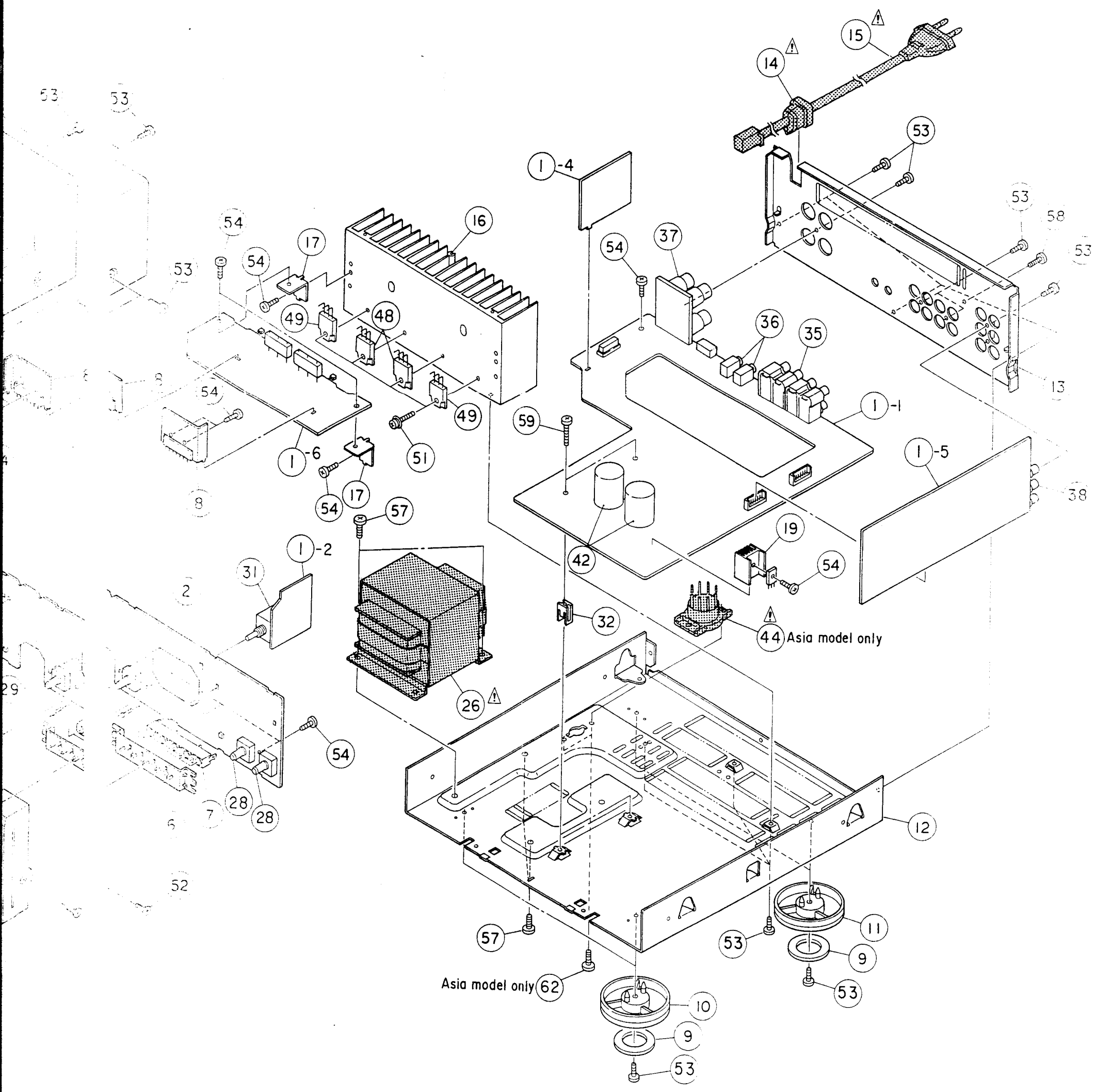
Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	960 0000 508	Main P.W.B. unit Ass'y	702801740001	1s
1-1	(960 0004 326)	Main unit	702801734001 Europe model	(1)
1-1	(960 0004 313)	Main unit	702801734002 Asia model	(1)
1-2	(960 0033 106)	Volume unit	702801736001 Europe model	(1)
1-2	(960 0002 506)	Volume unit	702801736002 Asia model	(1)
1-3	(960 0002 810)	Headphone unit	702801737001 Europe model	(1)
1-3	(960 0002 807)	Headphone unit	702801737002 Asia model	(1)
1-4	(960 0032 916)	AC in unit	702801739001 Europe model	(1)
1-4	(960 0032 903)	AC in unit	702801739002 Asia model	(1)
1-5	(960 0033 407)	Function unit	702801738001 Europe model	(1)
1-5	(960 0005 309)	Function unit	702801738002 Asia model	(1)
1-6	(960 0000 508)	Amp. unit	702801740001	(1)
2	960 0001 507	Front P.W.B. unit Ass'y	702801735001	1s
3	960 0000 809	Front panel	306702005801	1
4	960 0001 400	Remocon window	507002003201	1
5	960 0000 906	Inner panel	321702001101	1
6	960 0001 109	Lens (Function)	371002001202	1
7	960 0002 302	LED holder	432002017101	1
8	—	Heat sink	212002002801	2
9	960 0003 505	Foot cushion	405002007501	4
10	960 0003 408	Foot hotstamp	400700006101	2
11	960 0003 204	Foot	400000060101	2
12	960 0003 123	Main chassis	320002007603 Europe model	1
12	960 0003 110	Main chassis	320002007604 Asia model	1
13	960 0033 203	Rear panel	320702006601 Europe model	1
13	960 0032 204	Rear panel	320702006602 Asia model	1
⚠ 14	960 0003 602	Cord bush	438000018000	1
⚠ 15	960 0032 301	AC cord	L06100041001	1
16	—	Heat sink Ass'y	212800026001	1
17	960 0000 401	Bracket	401002005601	2
★18	960 0000 605	9P FP cable (CN102)	L13206091001	1
19	—	Heat sink	212002001801	1
20	960 0003 806	Volume knob	508702003101	1
21	960 0002 205	Sensor holder	432002016101	1
22	960 0001 206	Function button	508702001101	1
23	960 0003 709	Knob	508702002101	3
24	960 0001 002	Lens (Power)	371002000201	1
25	960 0001 303	Power button	508702004101	1
⚠ 26	960 0033 601	Power transformer	820074003701 Europe model	1
⚠ 26	960 0033 009	Power transformer	820074003703 Asia model	1
27	960 0001 808	Remocon sensor SBX8025	A601 E94000013010	1
28	960 0001 701	Variable resistor 100 kohm	VR601,602 Tone C45412140022	2
29	960 0001 604	Variable resistor 200 kohm	VR603 Balance C45211240050	1
30	960 0002 904	Headphone jack	JACK501 G40220780060	1 1
31	960 0002 603	Variable resistor 100 kohm	VR401 Volume C49512140021	 1
32	960 0003 301	P.W.B. holder	407000160101	2
33	960 0000 702	Top cover	300002010601	1
34	960 0002 108	LED support	407002003501	1
35	960 0004 504	4 P pin jack	JACK101,102 G60204004500	2
36	960 0004 407	Mini jack φ3.5	JACK103,104 G40103110201	2
37	960 0004 601	4 P speaker terminal	JACK105 G61204204020	1
38	960 0005 406	6 P pin jack	JACK201 G60306004602	1
⚠ ★39	960 0037 005	Fuse 1.25A/250V	F501 G65012225102 Europe model	1
⚠ ★39	960 0037 005	Fuse 1.25A/250V	F502 G65012225102 Asia model	1
★40	960 0036 802	Relay (DH24-D2-OS(M))	K101 G68000019001	1
★41	960 0004 708	Relay (DS2Y-S-DC12V)	K102 G68000025001	1
42	254 6147 001	Electrolytic cap. 6800 μF/50V	C123,124 CE68W1H682MDL	2
⚠ ★43	960 0037 102	Fuse T2.5A/250V	F501 G65025225103 Asia model only	1

EXPLODED VIEW



Ref. No.	Part No.	Part Name	Remarks	Q'ty
⚠ 44	960 0036 808	Rotary switch (Voltage switch)	SW501 G12037312000 Asia model only	1
★45	—	Plate	447002008901	1
★46	—	Pre-set label 2	550702001002 Europe model	1
★46	515 0702 017	Pre-set label	550702001001 Asia model	1
★47	960 0036 909	GND-terminal	GND101 379000012000	1
48	960 0000 304	Transistor 2SC4467P(O/P/Y)	Q303,304	2
49	960 0000 207	Transistor 2SA1694P(O/P/Y)	Q305,306	2

Ref. No.	Part No.	Part Name	Remarks
SCREWS (including washers)			
51	960 9000 185	Screw 3 x 14 with w.,sp.washer	[illegible]
52	960 9000 130	Screw 3 x 8 B tite/FH	[illegible]
53	960 9000 127	Screw 3 x 8 B tite Br/BH	[illegible]
54	960 9000 114	Screw 3 x 8 B tite YL/BL	[illegible]
55	—	—	
56	960 9000 198	Screw 3 x 8 with washer	[illegible]
57	960 9000 169	Screw 4 x 8 B tite YL/BH	[illegible]
58	960 9000 172	Screw 4 x 8 S/washer	[illegible]
59	960 9000 156	Screw 3 x 17 B tite/BH	[illegible]
★60	960 9000 101	Screw 3 x 8 CR/BH	[illegible]
★61	960 9000 143	Screw 3 x 12 B tite	[illegible]
62	960 9000 282	Screw 3 x 6/BH	[illegible] Asia model only



Remarks	R	...	Q'ty
...			

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol ⚠ [redacted] have critical characteristics.

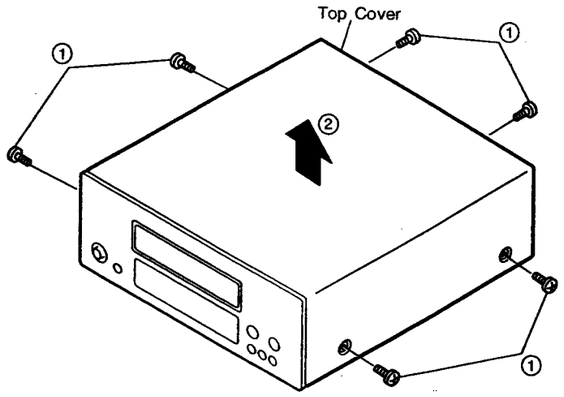
Use ONLY replacement parts recommended by the manufacturer.

DISASSEMBLY PROCEDURES

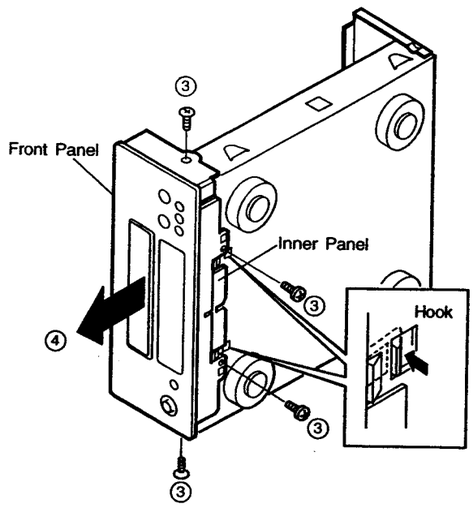
(Assembly is performed in the reverse order.)

1. Top Cover and Front Panel

① Remove 6 screws mounting on the Top Cover.
② Detach the Top Cover in the arrow direction.

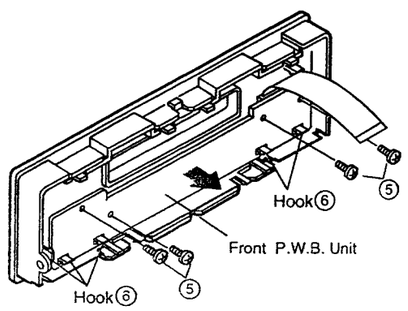


③ Remove 2 each screws fastening the Front Panel on the bottom and both side.
④ While releasing 2 Hooks of the Inner Panel from the chassis, pull toward arrow direction and detach the Front Panel and the Inner Panel as a whole.



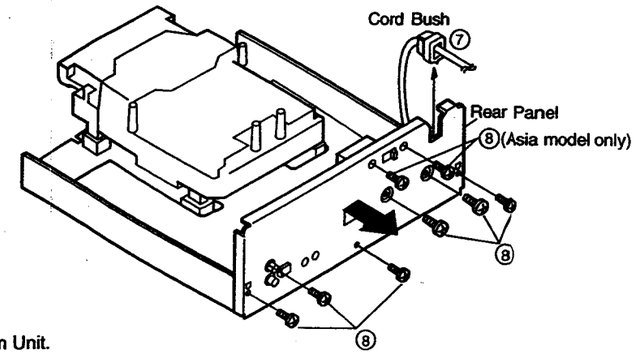
2. Front P.W.B. Unit

⑤ Remove 4 screws fastening Front P.W.B. Unit.
⑥ Release 5 Hooks and detach the Front P.W.B. Unit in the arrow direction.



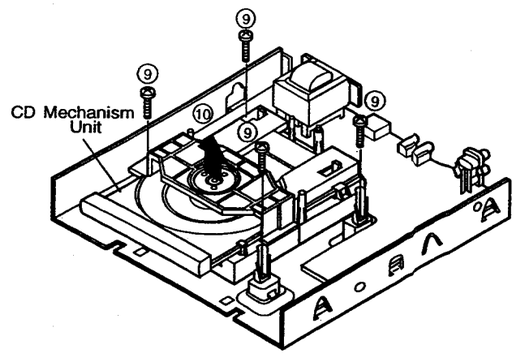
3. Rear Panel

⑦ Remove the Cord Bush from the Rear Panel.
⑧ Remove 6 screws (Europe model) / 8 screws (Asia model) fixing the Rear Panel, then detach the Rear Panel in the arrow direction.



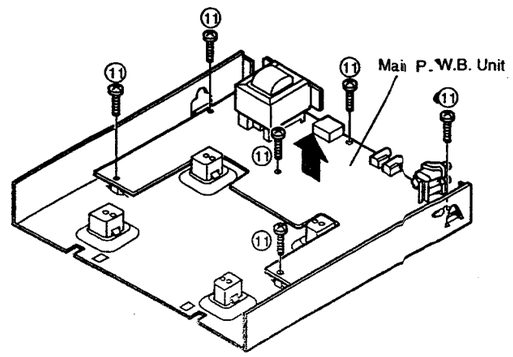
4. CD Mechanism Unit

⑨ Remove 4 screws fixing the CD Mechanism Unit.
⑩ Detach the CD Mechanism Unit in the arrow direction.



5. Main P.W.B. Unit

⑪ Remove 6 screws fastening the Main P.W.B. Unit and detach the Main P.W.B. Unit in the arrow direction.



LASER PICKUP

Terminal Connection

1. PD Connector (Pick-up section)

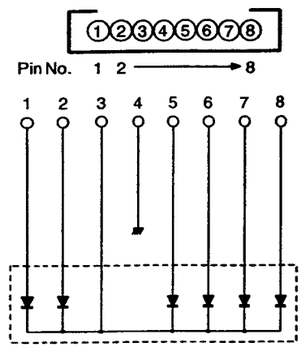
Terminal No.	Contents
1	PD F
2	PD E
3	PD K
4	PD GND
5	PD A
6	PD B
7	PD C
8	PD D

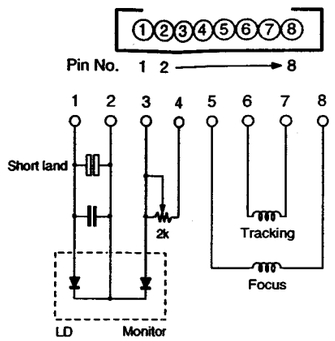
2. LD Actuator Connector (Pick-up section)

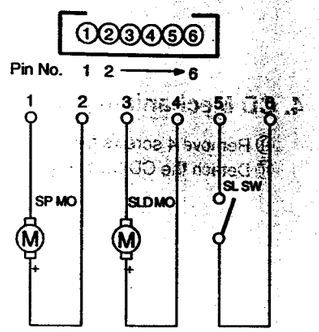
Terminal No.	Contents
1	LD
2	LD GND
3	LD Monitor
4	LD Reference level
5	FCS (B) –
6	TRK (B) +
7	TRK (A) –
8	FCS (A) +

3. Motor Connector (Motor unit section)

Terminal No.	Contents
①	Spindle motor –
②	Spindle motor +
③	Sled moter –
④	Sled motor +
⑤	Limit switch
⑥	Limit switch





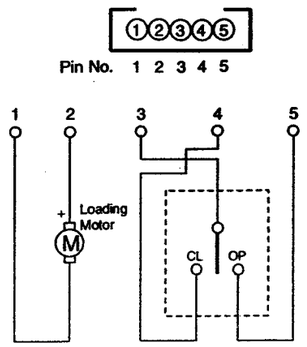


4. Loading Connector (Loading unit section)

Termina No.	Contents
1	Loading motor –
2	Loading motor +
3	Common terminal
4	Draw out detection terminal
5	Storing detection terminal

List of Using Connector

Name	Maker's Name	Kind	Type	color
PD connector	JST	PH connector	B8B-PH	White
LD actuator connector	JST	PH connector	B8B-PH	Red
Motor connector	JST	PH connector	S6B-PH	White
Loading connector	JST	SAN connector	5P-SAN-PH	White



CAUTION

When replacing Pick-up section, connect red connector cord to PD connector (white) of Pick-up section, and white connector cord to LD connector (red) of Pick-up section.

Description of the Components

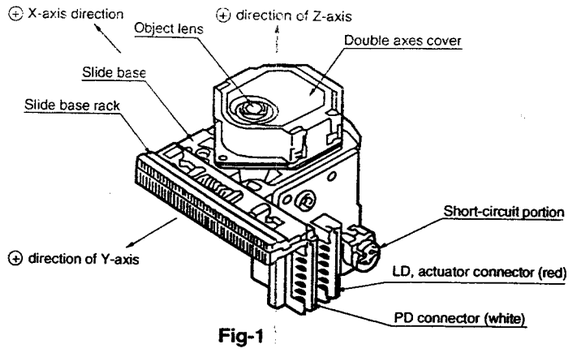


Fig-1

Caution for Handling the Laser Pickup

The laser pick-up KSS-240A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with care

(1) Storage

Do not store the pickup in dusty, high-temperature or high-humidity environments.

Be sure to place ⊕ direction of Z-axis up or ⊕ direction of Y-axis down as shown in the Fig-1 during shipment.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes

The laser beam may damage the human eye, since the intensity of the focused spot may reach 7 x 10^3 W/cm^2 even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the odjective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the odjective lens directly nor another lens or a mirror.

(2) Poison of As

Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g.As_2O_3, AsCl3 etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200 ℃ or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge

The LD may be damaged or deteriorated by its own strong light if a large current is supplied to it, even if only a short pulse.

Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuited by solder for protection during shipment.

For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended.

And still it is further desirable to make use of mat on the platform and floor for handling the LD.

To open the short-circuit, remove the soldering quickly with a soldering iron whose metal part is grounded.

The temperature of the soldering iron should be less than 320 ℃ (30 W).

3. Double axes

(1) Actuator

The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.

(2) Cleaning the lens

It may change the specifications by attaching dust or ash on the objective lens. Clean the lens with a cleaning paper dampened with a little water, not pressing lens with so much strength by the cleaning paper.

4. Lubrication

No lubrication is essential in operation.

5. Servo Circuit

As this unit is employed a fully adjusted circuit, never attempt to adjust the control volumes.

Cautions for Operation

(1) APC Circuit

Because the laser diode (LD) differs its optical output greatly by temperature, make the compensation of optical output with a monitor photo diode built in LD.

In order to make monitor photo diode in unified characteristic, the optical output and monitor photo diode relation of VR adopted to pick-up is adjusted the RF output fixed. RF level at the time using a supplied estimate reference circuit becomes 1 Vp-p.

(2) Connection

Connection must be used the specified connector.

If noise source such as microcomputer, etc. exists close to the harness coming from photo diode may deteriorate eye pattern, be paid attention.

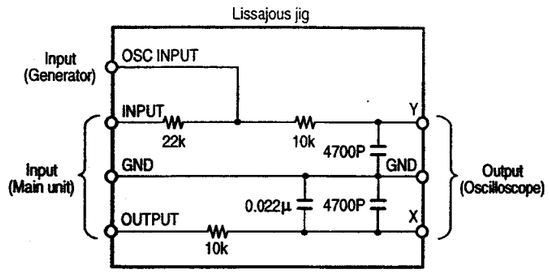
Failure connection in LD, actuator connector may result in laser deterioration. Firmly connect the connectors.

ADJUSTMENTS

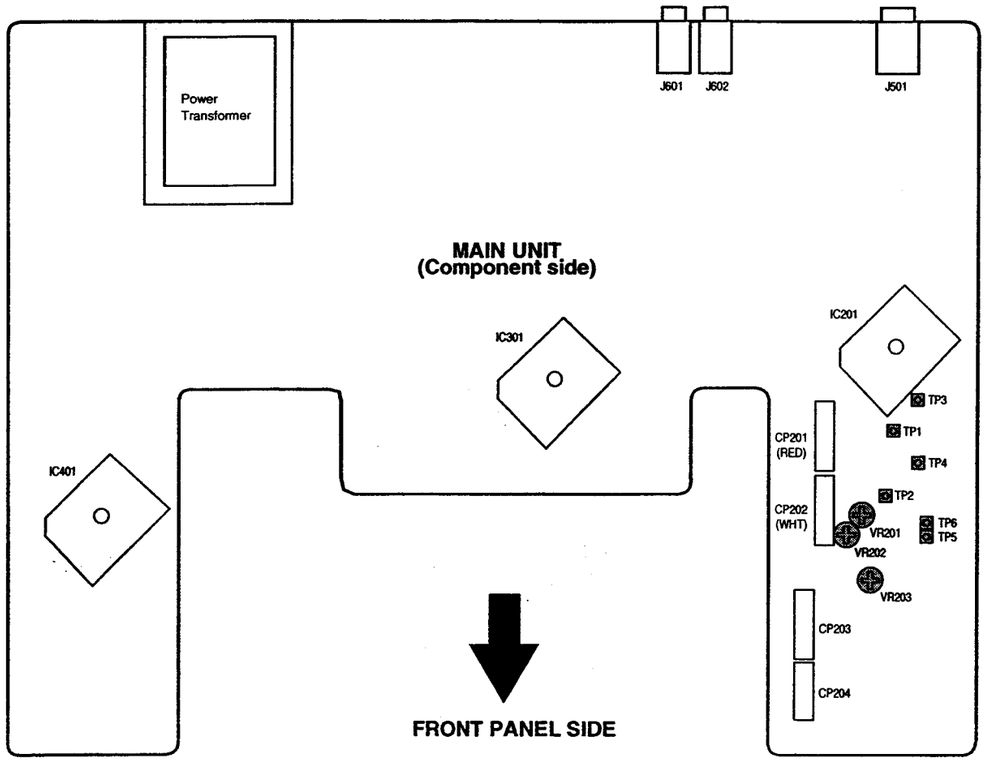
1. Adjustment method

(1) Necessary equipment for adjustment

1. Dual trace oscilloscope
2. Reference disc TOMITA YASUKO (CA-1094 or CA-1094A)
3. Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4. Frequency counter (readable no less than 5 kHz)
5. Lissajous jig



(2) Location



TEST POINT	
TP1 : 2.5V	TP4 : FEI
TP2 : RF	TP5 : TEO
TP3 : FEO	TP6 : TEI

(3) Preset

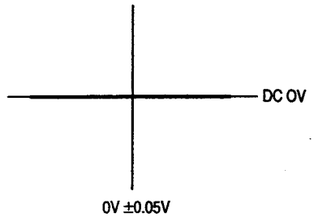
1.	Preset VR201 to 203 as per right fiqure.	VR201 (Focus offset) 3 O'clock; VR202 (Tracking offset) 3 O'clock; VR203 (Tracking gain) 3 O'clock
2.	Step.	1. Focus offset (refer to page 78) 2. Tracking offset (refer to page 78) 3. Tracking gain (refer to page 78)

CD PLAYER SECTION

Adjustment Disc: CA-1094 or CA-1094A

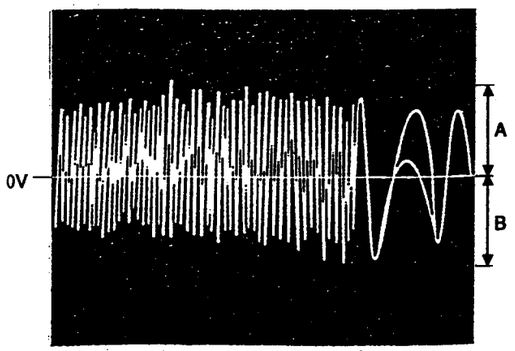
1. Focus offset Adjustment

1. Connect an oscilloscope to TP3 (FEO) and TP1 (2.5 V).
2. Insert the disc and set the unit in stop mode.
3. Adjust VR201 so as a DC voltage value on the scope becomes 0 V.

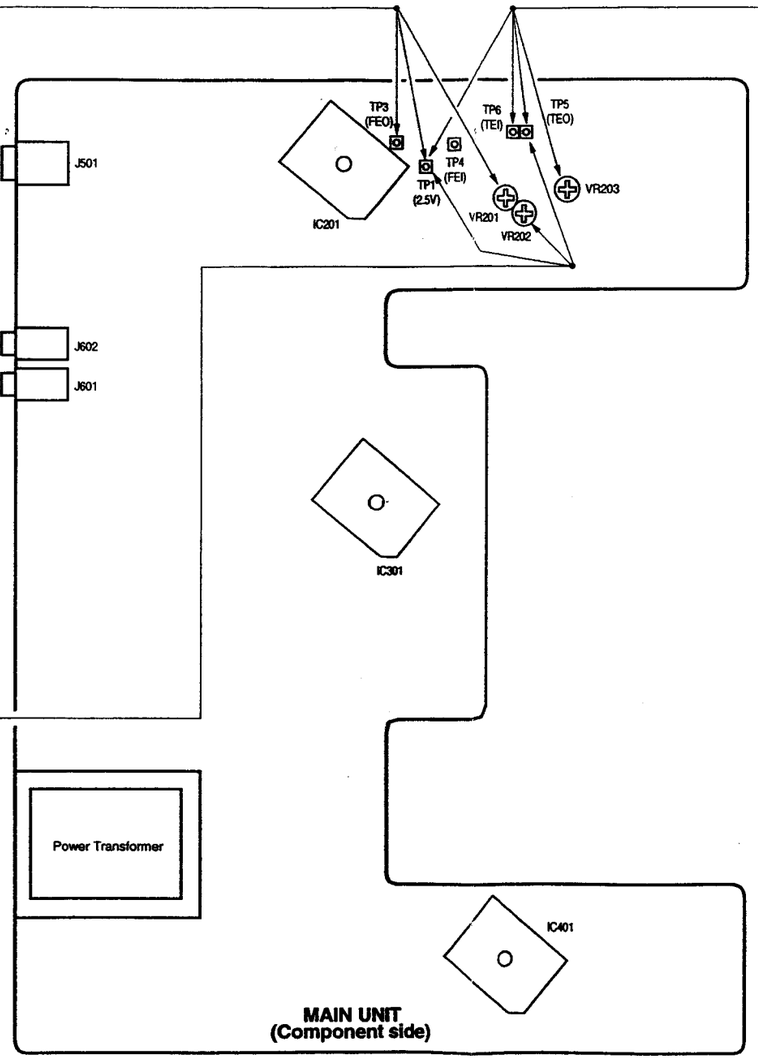


2. Tracking offset Adjustment

1. Connect an oscilloscope to TP5 (TEO) and TP1 (2.5 V).
2. Insert the disc and set the unit in play mode.
3. Set VR203 fully counterclockwise.
4. Adjust VR202 and obtain a waveform on the scope becomes A = B.

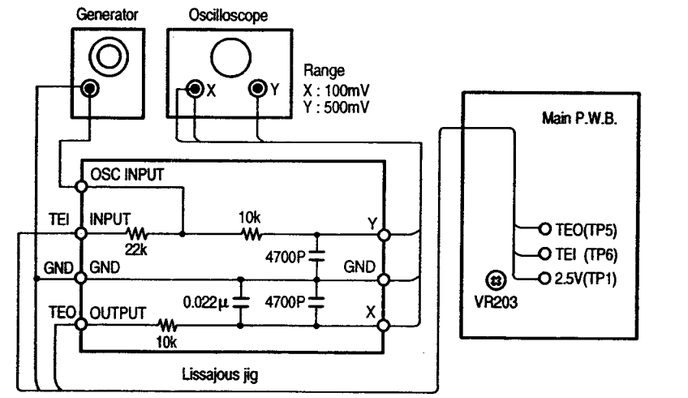


A=B±0.1V

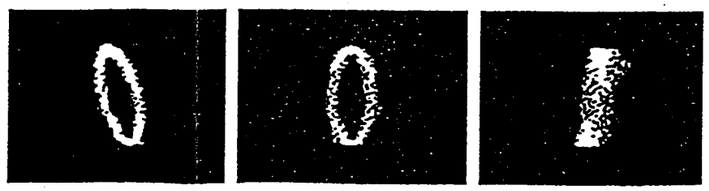


3. Tracking Gain Adjustment

1. Connect INPUT terminal of Lissajous jig and TP6 (TEI).
2. Connect OUTPUT terminal of Lissajous jig and TP5 (TEO).
3. Connect GND terminal of Lissajous jig and TP1 (2.5 V).
4. Connect OSC INPUT terminal of Lissajous jig and output terminal of generator.
5. Connect GND terminal of Lissajous jig and GND terminal of generator.
6. Connect X, Y terminals of Lissajous jig and X, Y terminals of oscilloscope.
7. Connect GND terminal of Lissajous jig and GND terminal of oscilloscope.
8. Adjust the generator so as to obtain a frequency 900 Hz, output 4.0 Vp-p.
9. Load the disc and set the unit in play mode.
10. Adjust VR203 to obtain a waveform on the scope as indicated the following figures.



■ **Tracking Gain Waveform**



No good
(Clockwise gain: Max)

Good
(Center)

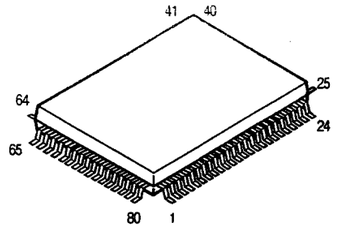
No good
(Counterclockwise gain: Max)

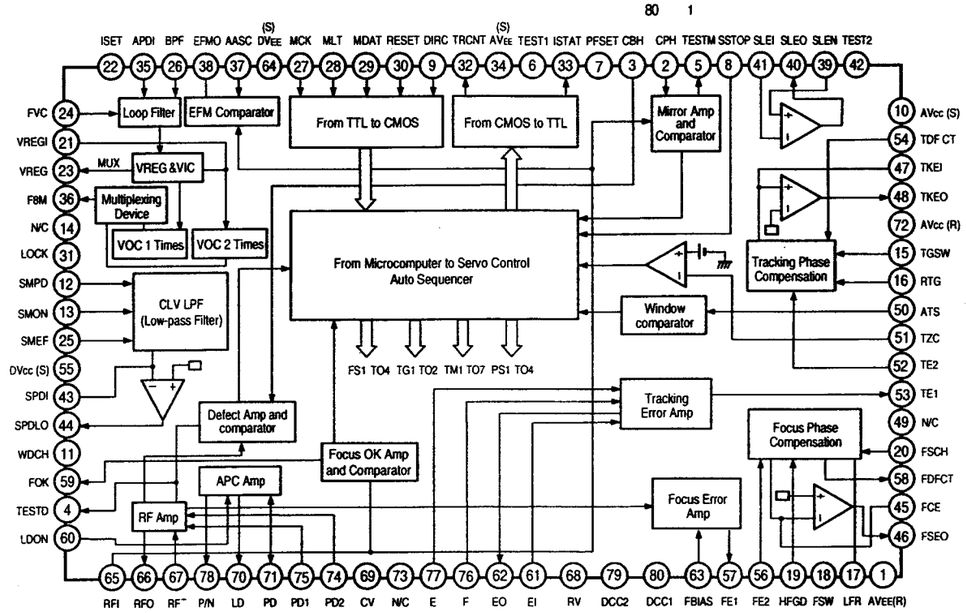
SEMICONDUCTORS

IC's

KA9220C

(IC201) Linear Integrated Circuit



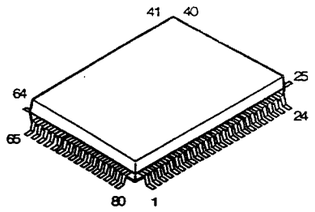


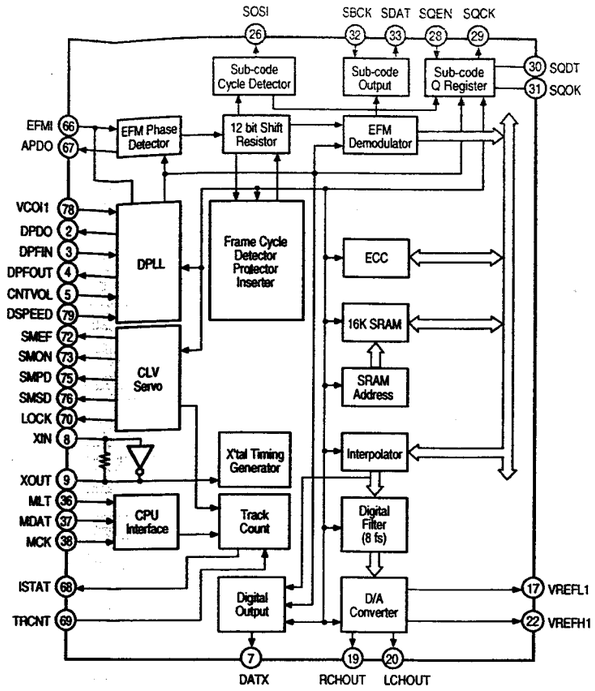
KA9220 Terminal Function

Pin No.	Terminal Name	Function
1	AVEE(R)	Analog – power supply input for RF part.
2	CPH	Capacitor connection pin for mirror hold.
3	CBH	Capacitor connection pin for defect bottom hold.
4	TESTD	Defect test pin.
5	TESTM	Mirror test pin.
6	TEST1	Input pin for test.
7	PFSET	Peak frequency set pin and CLVLPF cut-off frequency set pin for focus, tracking compensation.
8	SSTOP	Checking of pick-up positioning pin that is inside or not.
9	DIRC	Direction control pin of 1 track jump.
10	AVCC(S)	Analog + power supply input for servo part.
11	WDCH	Auto sequencer clock input pin (normal speed = 88.2 kHz, double speed = 176.4 kHz).
12	SMPD	Connection pin of DSPSMPD.
13	SMON	Connection pin of DSPSMON. Spindle servo turns ON at "H".
14	N/C	No connection.
15	TGSW	Gives time constant for changing high frequency tracking gain.
16	RTG	Capacitor connection pin for shifting tracking gain to high frequency.
17	LFR	Capacitor connection pin for lifting lower frequency band of focus servo loop.
18	FSW	Enables to shift high frequency gain of focus servo loop with switch FS3 ON/OFF.
19	HFGD	Reduces high frequency gain with a capacitor connected between Pin18 and Pin 19.
20	FSCH	External time constant pin for generating focus search waveform.
21	VREGI	Voltage input pin of external VCO regulator.
22	ISET	Decides peak value of focus search, track jump and SLED kick.
23	VREG	Regulator output pin of 3.5V.
24	FVC	Pin connected to external resistor for VCO free-run frequency adjustment.
25	SMEF	Supplies time constant of CLV SERVO loop external LPF.
26	BPF	Supplies time constant for VCO loop filter.
27	MCK	Clock signal input pin from microcomputer.
28	MLT	Latch signal input pin from microcomputer.
29	MDAT	Data signal input pin from microcomputer.
30	RESET	Reset signal input pin from microcomputer, "L" to reset.
31	LOCK	Pin for overrun preventing function operation at "L".
32	TRCNT	Track counting output pin.
33	ISTAT	Inner status output pin.
34	AVEE(S)	Analog – power supply input pin for servo part.
35	APDI	Phase comparing output of DSP. (PHAS) input pin.
36	F8M	Output pin of analog VCO (normal speed = 8.64 MHz, Double speed = 17.28 MHz).
37	AASC	Auto asymmetric control input pin.
38	EFMO	EFM comparator output pin.
39	SLEN	Input pin of non-inverting SLED SERVO Amp.
40	SLEO	Output pin of SLED SERVO Amp.
41	SLEI	Input pin of inverting SLED SERVO Amp.
42	TEST2	Test input pin for speed mode shifting (normal speed = "H", double speed = "L").
43	SPDI	Input pin of inverting spindle servo Amp.
44	SPDLO	Output pin of spindle servo Amp.
45	FCE	Input pin of inverting focus servo Amp.
46	FSEO	Output pin of focus servo Amp.
47	TKEI	Input pin of non-inverting tracking servo Amp.
48	TKEO	Output pin of tracking servo Amp.
49	N/C	No connection.
50	ATS	Anti-shock input pin.
51	TZC	Tracking zero cross input pin.
52	TE2	Tracking error servo input pin.
53	TE1	Tracking error amp output pin.
54	TDFCT	Capacitor connection pin for tracking servo defect compensation.
55	DVCC(S)	Digital + power supply input pin for servo part.
56	FE2	Focus error servo input pin.
57	FE1	Focus error Amp output pin.
58	FDFCT	Capacitor connection pin for focus servo defect compensation.
59	FOK	Output pin of focus OK comparator.
60	LDON	ON/OFF control pin of laser diode.
61	EI	EI-V Amp feedback input pin.
62	EO	EI-V Amp output pin.
63	FBIAS	Bias pin of non-inverting focus error Amp input.
64	DVEE(S)	Digital – power supply input pin for servo part.
65	RFI	Output signal of RF addition Amp input through capacitor.
66	RFO	Output pin of RF addition Amp.
67	RF-	Input pin of inverting RF addition Amp.
68	RV	Output pin of voltage (Avcc +AVEE)/2
69	CV	Bias input pin of center voltage buffer.
70	LD	Output pin of APC Amp.
71	PD	Input pin of APC Amp.
72	AVCC(R)	Analog + power supply input pin for RF part.
73	N/C	No connection.
74	PD2	Input pin of inverting RFI-V Amp 2.
75	PD1	Input pin of inverting RFI-V Amp 1.
76	F	Input pin of inverting FI-V Amp.
77	E	Input pin of inverting EI-V Amp.
78	P/N	P-sub/N-sub selection of laser diode.
79	DCC2	Output of defect bottom hold input through capacitor.
80	DCC1	Output pin of defect bottom hold.

CD PLAYER SECTION

KS9282
(IC301) CMOS Integrated Circuit

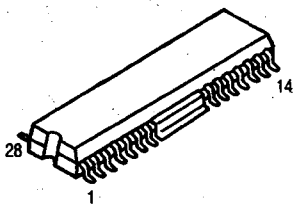


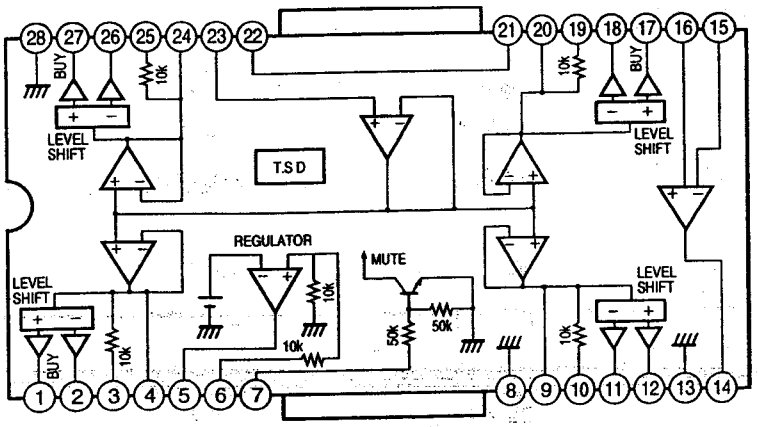


KS9282 Terminal Function

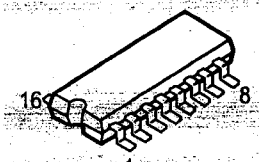
Pin No.	Symbol	I/O	Function
1	AVDD1		Analog Vcc1.
2	DPDO	O	Charge pump output for master PLL.
3	DPFIN	I	Filter input for master PLL.
4	DPFOUT	O	Filter output for master PLL.
5	CNTVOL	I	VCO control voltage for master PLL.
6	AVSS1		Analog GND 1.
7	DATX	O	Digital audio output.
8	XIN	I	X'tal oscillator input.
9	XOUT	O	X'tal oscillator output.
10	WDCH	O	Word clock of 48-bit/SLOT (normal speed = 88.2 kHz, double speed = 176.4 kHz).
11	LRCH	O	Channel clock of 48-bit/SLOT (normal speed = 44.1 kHz, double speed = 88.2 kHz).
12	ADATA	O	Serial audio data output of 48-bit/SLOT (MSB 1st).
13	DVSS1		Digital GND 2.
14	BCK	O	Audio data bit clock for 48-bit/SLOT (normal speed = 2.1168 kHz, double speed = 4.2336 kHz).
15	C2PO	O	C2 pointer for output audio data.
16	VREFL2	I	Input terminal 2 of reference voltage "L" (floating).
17	VREFL1	I	Input terminal 1 of reference voltage "L" (GND connection).
18	AVDD2		Analog Vcc2.
19	RCHOUT	O	R-ch audio output through D/A converter.
20	LCHOUT	O	L-ch audio output through D/A converter.
21	AVSS2		Analog GND 2.
22	VREFH1	I	Input terminal 1 of reference voltage "H" (VDD connection).
23	VREFH2	I	Input terminal 2 of reference voltage "H" (floating)
24	EMPH	O	Emphasis/non-emphasis output ("H" : emphasis).
25	LKFS	O	Output of frame sync lock state.
26	SOSI	O	Sub-code sync signal (S0 + S1) output.
27	RESET	I	Resets system at "L".
28	SQEN	I	SQCK I/O control ("L" : inner CK, "H" : external CK).
29	SQCK	I/O	Clock for output sub-code Q data.
30	SQDT	O	Serial output of sub-code Q data.
31	SQOK	O	CRC check result signal output of sub-code Q data.
32	SBCK	I	Clock for output sub-code Q data.
33	SDAT	O	Sub-code serial data output.
34	DVDD1		Digital Vcc1.
35	MUTE	I	Mute control input ("H" : mute ON).
36	MLT	I	Latch signal input from microcomputer.
37	MDAT	I	Serial data input from microcomputer.
38	MCK	I	Serial clock input from microcomputer.
39	DB8	I/O	SRAM data I/O port 8 (MSB).
40	DB7	I/O	SRAM data I/O port 7.
41	DB6	I/O	SRAM data I/O port 6.
42	DB5	I/O	SRAM data I/O port 5.
43	DB4	I/O	SRAM data I/O port 4.
44	DB3	I/O	SRAM data I/O port 3.
45	DB2	I/O	SRAM data I/O port 2.
46	DB1	I/O	SRAM data I/O port 1 (LSB).
47	C1F1	I/O	Monitor output for C1 error compensation (RA1).
48	C1F2	I/O	Monitor output for C1 error compensation (RA2).
49	C2F1	I/O	Monitor output for C2 error compensation (RA3).
50	C2F2	I/O	Monitor output for C2 error compensation (RA4).
51	C2FL	I/O	C2 decoder flag (High : processing C2 code is in state of unable to compensate)(RAS).
52	PBCK	I/O	Output of VCO/2 (normal speed: 4.3218 MHz, double speed : 8.6436 MHz).
53	DVSS2		Digital GND2.
54	FSDW	I/O	Unprotected frame sync (RA7).
55	ULKFS	I/O	Frame sync protect condition (RA8).
56	JIT	I/O	Both displays-overflow and underflow of RAM for ±4 fram jitter margin (RA9).
57	C4M	I/O	Monitor signal only (normal playback : 4.2336 MHz) (RA10).
58	C16M	I/O	16.9344 MHz signal output (RA11).
59	WE	I/O	Test terminal.
60	CS	I/O	Test terminal.
61	SEL1	I	Mode select terminal 1 (H: 33.8688 MHz, L: 16.9344 MHz).
62	SEL2	I	Mode select terminal 2 (H: APLL, L: DPLL).
63	SEL3	I	Mode select terminal 3 (H: CDROM, L: CDP).
64	SEL4	I	Mode select terminal 4 (L: inner SLAM).
65	TEST	I	Test terminal (L = normal operation mode).
66	EFMI	I	EFM signal input.
67	APDO	O	Charge pump output for analog PLL.
68	ISTAT	O	Inner state output.
69	TRCNT	I	Tracking counting input signal.
70	LOCK	O	LKFS state sampling output signal of PBFR/16 (If LKFS is "H", LOCK is "H"; If LKFS is sampled "L" at least 8 time by PBFR/16, LOCK is "L").
71	PBFR	O	Writing of frame clock (LOCK : 7.35 kHz).
72	SMEF	O	LFP time constant control of spindle servo error.
73	SMON	O	ON/OFF control signal of spindle servo.
74	DVDD2		Digital Vcc2.
75	SMPD	O	Spindle motor drive (rough control at CLV-S mode, phase control at CLV-P mode).
76	SMSD	O	Spindle motor drive (speed control at CLV-S mode).
77	VCOO1	O	VCO output signal (When the state is Locked by PBFR, 8.643 MHz).
78	VCOI1	I	VCO input signal.
79	DSPEED	I	Double speed mode control (H: normal speed, L: double speed).
80	APD02	O	Analog PLL charge pump output for double speed mode.

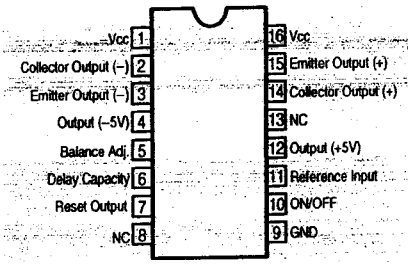
KA9258D (IC202)

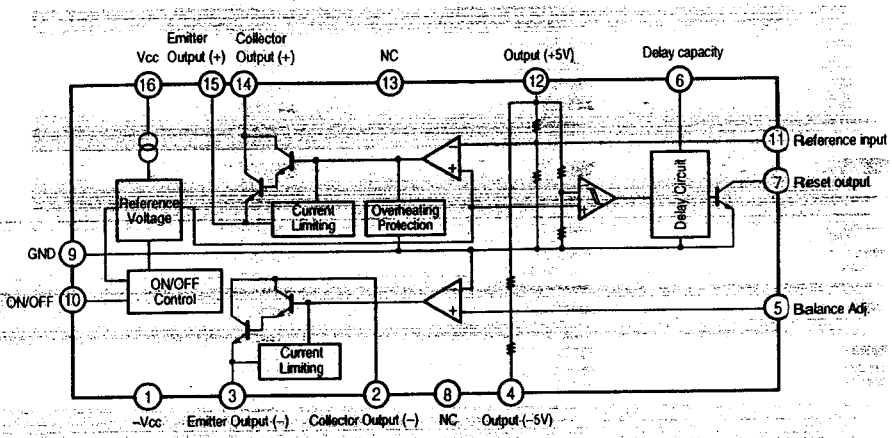




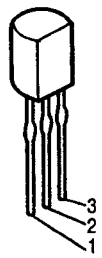
M5290FP (IC103)

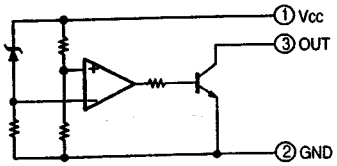




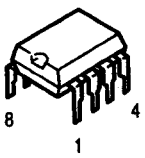


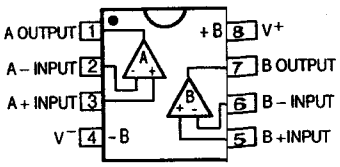
KIA7042P (IC402)



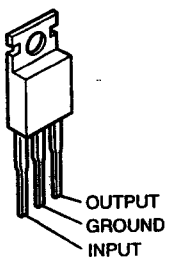


BA4558D (IC203, 501, 502)



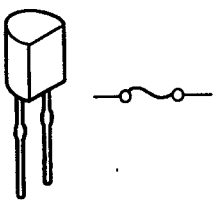


GL7808 (IC104)



● IC PROTECTOR

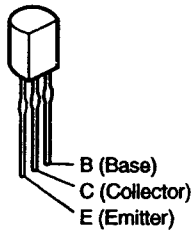
ICP-N15 (IC101, 102)



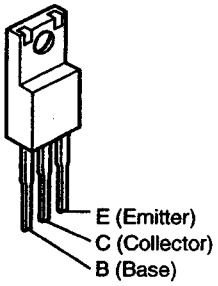
CD PLAYER SECTION

● TRANSISTORS

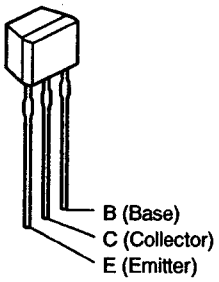
KTA1266 (Y)
KTC3198 (GR)



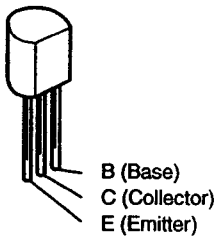
2SB1185 (E/F)



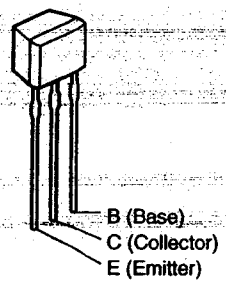
KTA1270 (Y)
KTC3202 (Y)



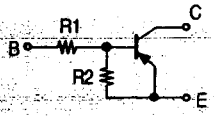
KTA1273 (Y)
KTC3205 (Y)



DTA144WS (PNP)
DTC114ES
DTC143TS } **(NPN)**
DTC343TS

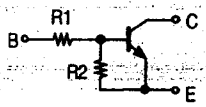


PNP Type
DTA WS Series



	R1	R2
DTA144WS	47 kohm	22 kohm

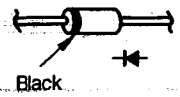
NPN Type
DTC ES/TS Series



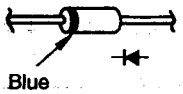
	R1	R2
DTC114ES	10 kohm	10 kohm
DTC143TS	4.7 kohm	—
DTC343TS	4.7 kohm	—

● DIODES

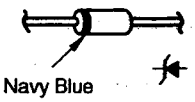
IN4002A



IN4148M

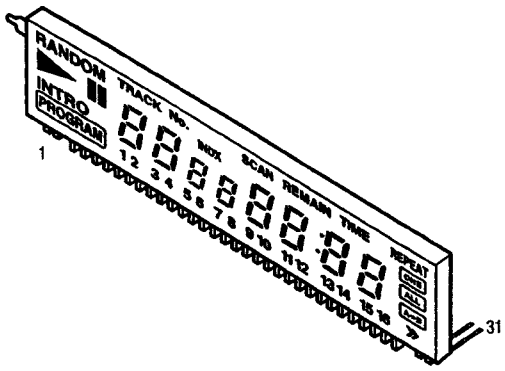


MTZ5.1B
MTZ5.6B
MTZJ24B



● FLUORESCENT DISPLAY TUBE 10BT151GK (FLT701)

(Part No.: DCD 2150 423)



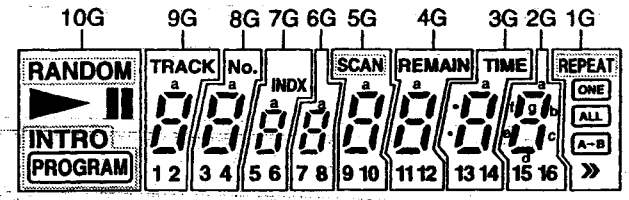
PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Connection	F1	F1	NP	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	NC	NC	NC	a	b	c	d	e	f

Pin No.	25	26	27	28	29	30	31
Connection	g	h	i	j	NP	F2	F2

NOTE 1) Fl and F2: ..... Filaments
2) NP: ..... No pin
3) NC: ..... No connection
4) 1G through 11G: ..... Gird

GIRD ASSIGNMENT



ILLUMINATION COLORS

Reddish orange ..... [ ] portion of above pattern
Green ..... Other portions

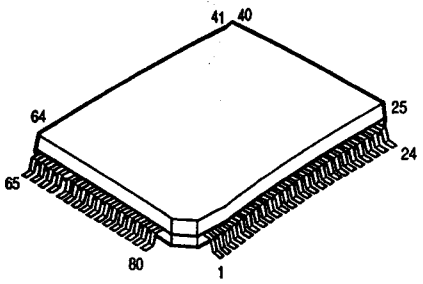
ANODE CONNECTION

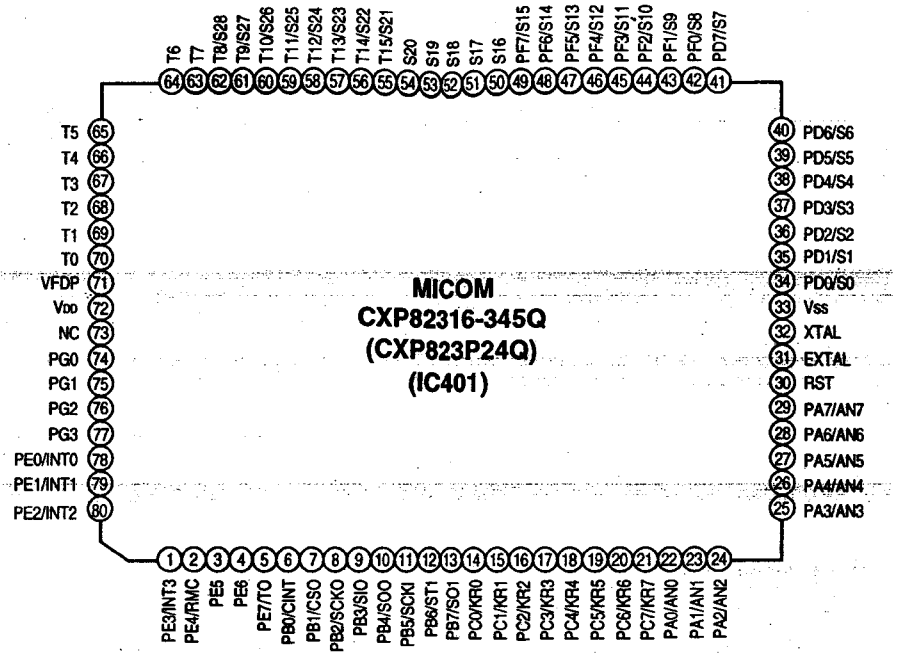
	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	RANDOM	a	a	a	a	a	a	a	a	—
P2	▶	b	b	b	b	b	b	b	b	—
P3	❚❚	c	c	c	c	c	c	c	c	—
P4	—	d	d	d	d	d	d	d	d	REPEAT
P5	—	e	e	e	e	e	e	e	e	ONE
P6	—	f	f	f	f	f	f	f	f	ALL
P7	—	g	g	g	g	g	g	g	g	A--
P8	—	TRACK	NO.	INDX	—	SCAN	REMAIN	TIME	—	B
P9	PROGRAM	1	3	5	7	9	11	13	15	—
P10	INTRO	2	4	6	8	10	12	14	16	»

CD PLAYER SECTION

MICROPROCESSOR DOCUMENTATION

CXP82316-345Q
(CXP823P24Q)
(IC401)





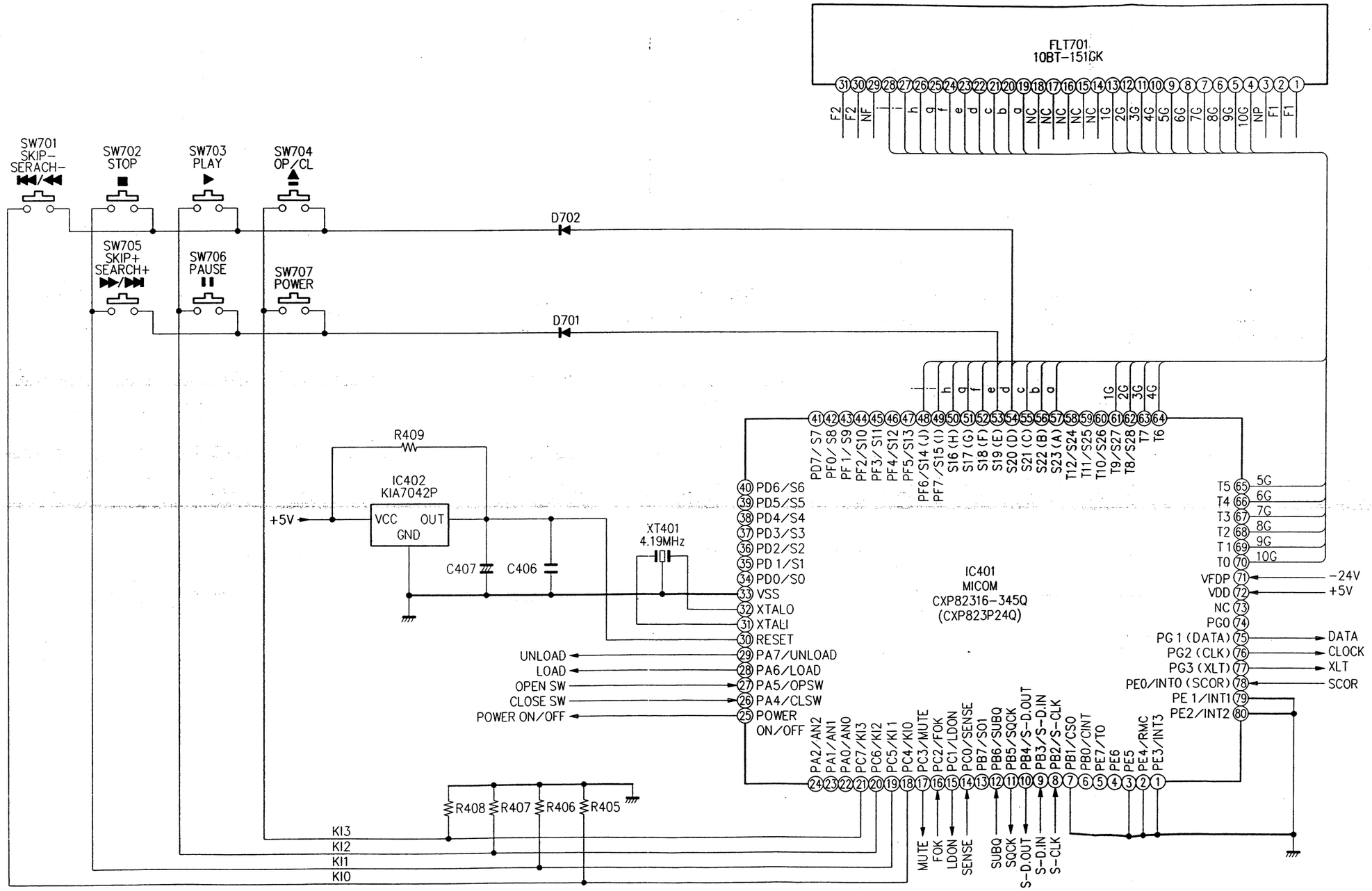
CXP82316-345Q (CXP823P24Q) Terminal Function

Pin No.	Port Name	Function Name	I/O	Ini	ACT	Function
1	PE3/INT3		I	—	—	Connect to GND.
2	PE4/RMC		I	—	—	Connect to GND.
3	PE5		I	—	—	Connect to GND.
4	PE6		O	—	—	Not used.
5	PE7/T0		O	—	—	Not used.
6	PB0/CINT		I/O	—	—	Not used.
7	PB1/CSO		I/O	—	—	Connect to GND.
8	PB2/SCKO	S-CLK	I	H	—	Serial input clock for system computer.
9	PB3/SIO	S-D. IN	I	H	—	Serial input data for system computer.
10	PB4/SO0	S-D. OUT	O	H	—	Serial output data for system computer.
11	PB5/SCKI	SQCK	O		—	Clock output signal for sub-code Q reading.
12	PB6/ST1	SUBQ	I		—	80-bit sub-code Q input signal.
13	PB7/SO1		O	—	—	Not used.
14	PC0/KR0	SENSE	I	—	H/L	SENSE input signal from CPU.
15	PC1/KR1	LDON	O	H	L	ON/OFF selection signal for CD.
16	PC2/KR2	FOK	I	L	H	Focus OK input signal terminal.
17	PC3/KR3	MUTE	O	H	H	Sound IC mute signal.
18	PC4/KR4	KI0	I	L	H	Key input.
19	PC5/KR5	KI1	I	L	H	Key input.
20	PC6/KR6	KI2	I	L	H	Key input.
21	PC7/KR7	KI3	I	L	H	Key input.
22	PA0/AN0		O	—	—	Not used.

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

CD PLAYER SECTION

1 2 3 4 5 6 7 8



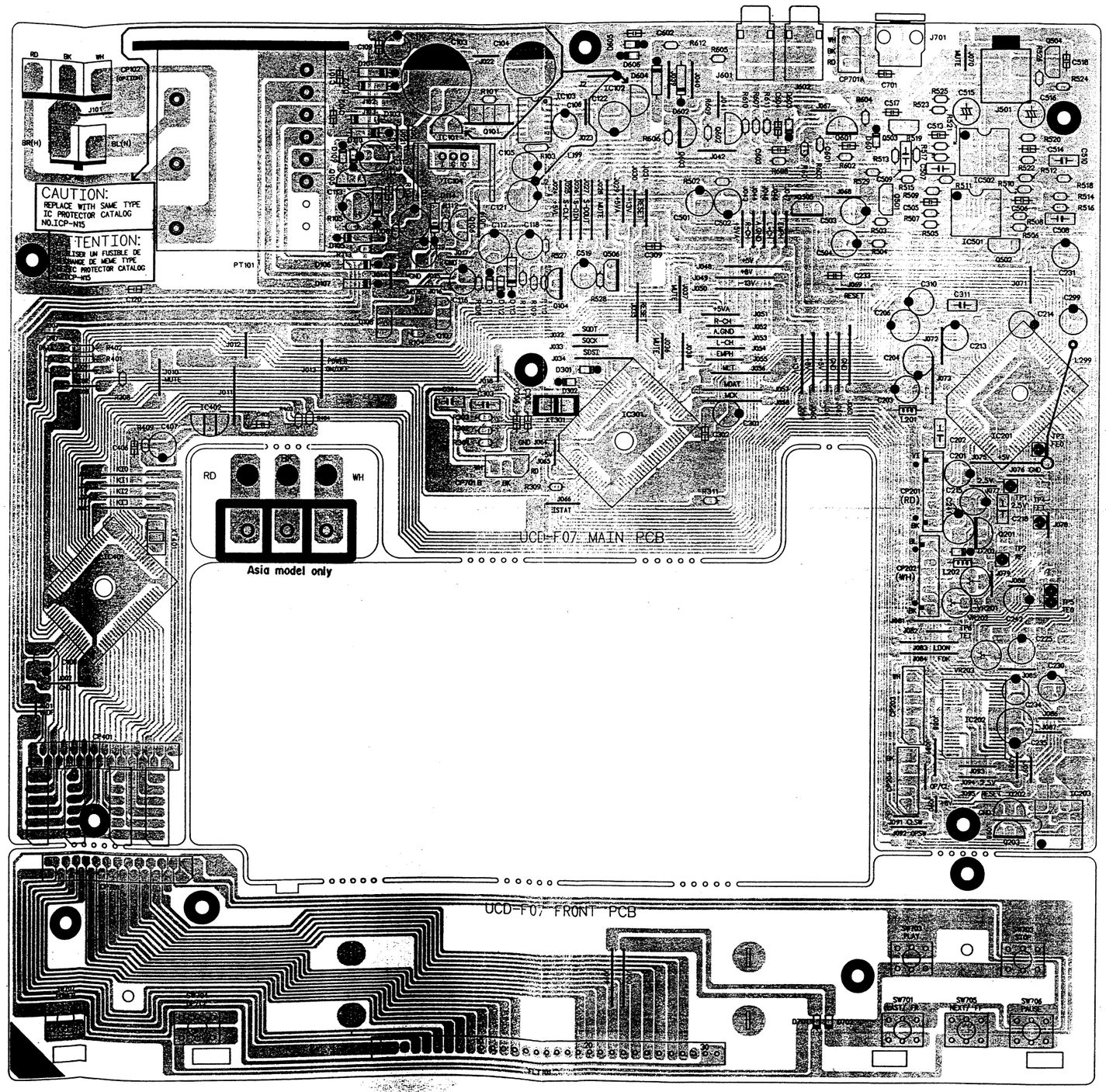
CD PLAYER SECTION

PRINTED WIRING BOARD

CD UNIT ASS'Y

Component Side

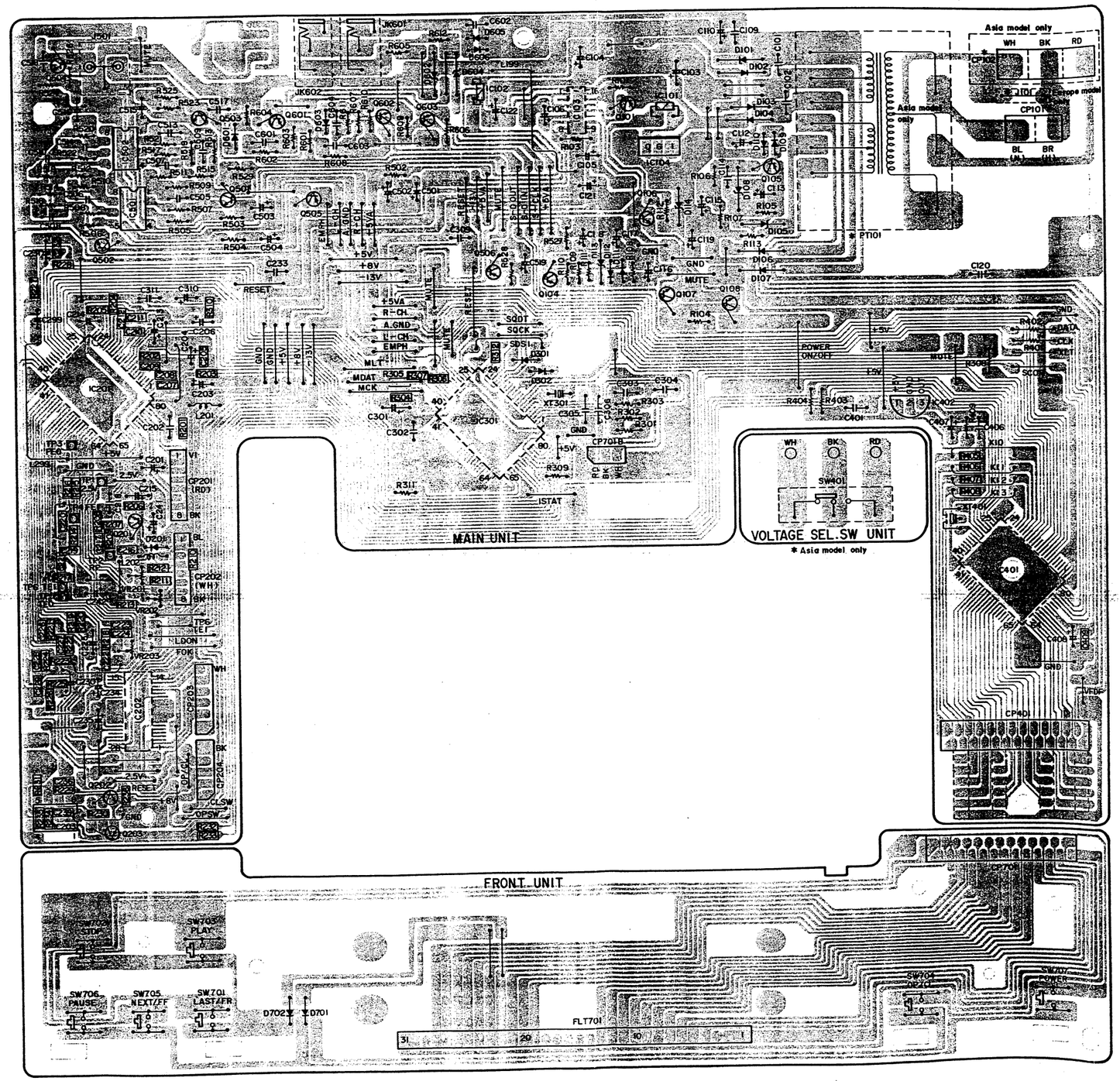
CD UNIT ASS'Y	
–1	Main Unit
–2	Front Unit
–3	Voltage Sel. SW Unit



1 2 3 4 5 6 7 8

A B C D E

Pattern Side



CD PLAYER SECTION

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▬ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

RD : Carbon RC : Composition RS : Metal oxide film RW : Winding RN : Metal film RK : Metal mixture	2B : 1/8W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse-resistor F : Lead wire forming

• Resistance

1 8 2 ⇒ 1800 ohm = 1.8 kohm
Indicates number of zeros after effective number.
2-digit effective number.
• Units: ohm

1 R 2 ⇒ 1.2 ohm
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: ohm

• Capacitors

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

CE : Aluminum foil electrolytic CA : Aluminum solid electrolytic CS : Tantalum electrolytic CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized	0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V	F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF = : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

• Capacity (electrolyte only)

2 2 2 ⇒ 2200μF
Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 R 2 ⇒ 2.2μF
1-digit effective number.
2-digit effective number, decimal point indicated by R.
• Units: μF.

• Capacity (except electrolyte)

2 2 2 ⇒ 2200pF = 0.0022μF
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: μF.

2 2 1 ⇒ 220pF
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.
• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

P.W.B. UNIT ASS'Y PARTS LIST

CD PLAYER UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
⚠ IC101,102	268 0073 905	IC ICP-N15	IC protector
IC103	960 0031 001	IC M5290FP	Linear offset
⚠ IC104	DCD 2150 416	IC GL7808	Regulator +8V
IC201	960 0010 200	IC KA9220C	Optical RF servo
IC202	DCD 2150 406	IC KA9258D	Linear driver
IC203	930 1002 009	IC BA4558D	Linear ope.amp
IC301	DCD 2150 454	IC KS9282	Optical display
IC401	960 0010 129	IC CXP823P24Q/82316-345Q	CPU microprocessor
IC402	DCD 2150 425	IC KIA7042P	Linear offset
IC501,502	930 1002 009	IC BA4558D	Linear ope.amp
Q101	272 0083 004	Transistor 2SB1185(E/F)	
Q104	960 0005 105	Transistor KTA1266(Y)	
Q105	960 0010 404	Transistor KTA1270(Y)	
Q106	DCD 2150 412	Transistor KTC3202(Y)	
Q107,108	269 0020 906	Transistor DTC114ES	Built in resistor
Q201	960 0010 404	Transistor KTA1270(Y)	
Q202	960 0010 705	Transistor KTC3205(Y)	
Q203	960 0010 501	Transistor KTA1273(Y)	
Q501,502	269 0099 908	Transistor DTC143TS	Built in resistor
Q503,504	S87 2990 550	Transistor DTC343TS	Built in resistor
Q505,506	269 0016 907	Transistor DTA144WS	Built in resistor
Q601	960 0005 105	Transistor KTA1266(Y)	
Q602	960 0010 608	Transistor KTC3198(GR)	
Q603	960 0005 105	Transistor KTA1266(Y)	
⚠ D101~104	916 0053 008	Diode 1N4002A	Rectifier
D105	276 0439 906	Zener diode MTZ5.1B	5.1 V
D106,107	276 0375 002	Diode 1N4148M	Switching diode
D108	9H3 0000 410	Zener diode MTZJ24B	24 V
D109~112	276 0375 002	Diode 1N4148M	Switching diode
D113,114	9H3 0000 251	Zener diode MTZ5.6B	5.6 V
D201	276 0375 002	Diode 1N4148M	Switching diode
D301,302	276 0375 002	Diode 1N4148M	Switching diode
D601	276 0375 002	Diode 1N4148M	Switching diode
D602	9H3 0000 251	Zener diode MTZ5.6B	5.6 V
D603	276 0375 002	Diode 1N4148M	Switching diode
D604	9H3 0000 251	Zener diode MTZ5.6B	5.6 V
D605,606	276 0375 002	Diode 1N4148M	Switching diode

Ref No.	Part No.	Part Name	Remarks
D701,702	276 0375 002	Diode 1N4148M	Switching diode
FLT701	DCD 2150 423	F.L.D. tube 10-BT-151GK	K53000021000
RESISTORS			
VR201	DCD 2150 408	Semifixed resistor 4.7 kohm	C54647200210 (F.O)
VR202	DCD 2150 407	Semifixed resistor 22 kohm	C54622300210 (T.O)
VR203	DCD 2150 407	Semifixed resistor 22 kohm	C54622300210 (T.G)
R101	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R103–105	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R106	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R107	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R108,109	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R110	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R111	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R112	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R113	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R201	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B–102J
R202	247 0013 984	Carbon chip 470 kohm 1/10W	RM73B–474J
R203	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B–104J
R204	247 0014 941	Carbon chip 820 kohm 1/10W	RM73B–824J
R205	247 0012 969	Carbon chip 150 kohm 1/10W	RM73B–154J
R206	247 0003 949	Carbon chip 22 ohm 1/10W	RM73B–220J
R207	247 0009 901	Carbon chip 4.7 kohm 1/10W	RM73B–472J
R208	247 0010 987	Carbon chip 27 kohm 1/10W	RM73B–273J
R209	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B–222J
R210	247 0004 980	Carbon chip 82 ohm 1/10W	RM73B–820J
R211,212	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B–103J
R213	247 0010 961	Carbon chip 22 kohm 1/10W	RM73B–223J
R214	247 0009 969	Carbon chip 8.2 kohm 1/10W	RM73B–822J
R215	247 0010 929	Carbon chip 15 kohm 1/10W	RM73B–153J
R216	247 0010 961	Carbon chip 22 kohm 1/10W	RM73B–223J
R217	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B–102J
R218	247 0012 969	Carbon chip 150 kohm 1/10W	RM73B–154J
R219	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B–104J
R220	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B–473F ±1%
R221	247 0012 901	Carbon chip 82 kohm 1/10W	RM73B–823J
R222	247 0011 957	Carbon chip 51 kohm 1/10W	RM73B–513J
R223	247 0010 929	Carbon chip 15 kohm 1/10W	RM73B–153J
R224	247 0011 960	Carbon chip 56 kohm 1/10W	RM73B–563J
R225	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B–473F ±1%
R226	247 0012 943	Carbon chip 120 kohm 1/10W	RM73B–124J
R227	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B–104J
R228	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B–103J
R229	247 0012 901	Carbon chip 82 kohm 1/10W	RM73B–823J
R230	247 0004 922	Carbon chip 47 ohm 1/10W	RM73B–470J
R231	247 0012 901	Carbon chip 82 kohm 1/10W	RM73B–823J

Ref. No.	Part No.	Part Name	Remarks
R232,233	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B–473F ±1%
R234,235	247 0011 902	Carbon chip 33 kohm 1/10W	RM73B–333J
R236	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B–0R0K
R298	247 0012 927	Carbon chip 100 kohm 1/10W	RM73B–104J
R301	241 2401 994	Carbon film 27 kohm 1/6W	RD14B2E273J(5)
R302,303	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R304–306	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B–473F ±1%
R307	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B–102J
R308	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R309	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R310	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B–105J
R311	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R312	247 0018 905	Carbon chip 0 ohm 1/10W	RM73B–0R0K
R401,402	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R403,404	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R405–408	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B–103J
R409	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R502	241 2060 005	Carbon film 47 ohm 1/4W	RD14B2E470J
R503,504	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R505,506	241 2404 991	Carbon film 470 kohm 1/6W	RD14B2E474J(5)
R507,508	241 2401 994	Carbon film 27 kohm 1/6W	RD14B2E273J(5)
R509,510	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R511,512	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R513,514	241 2404 991	Carbon film 470 kohm 1/6W	RD14B2E474J(5)
R515,516	241 2397 998	Carbon film 560 ohm 1/6W	RD14B2E561J(5)
R517,518	241 2398 997	Carbon film 1.5 kohm 1/6W	RD14B2E152J(5)
R519–522	241 2400 034	Carbon film 5.6 kohm 1/6W	RD14B2E562J(5)
R523,524	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R525–528	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R529	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R601	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R602,603	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R604	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R605	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R606	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R607,608	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R609	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R610,611	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R612	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
CAPACITORS			
C101,102	253 1173 996	Ceramic cap. 6800 pF/16V	CK14X1C682M
C103	254 4256 091	Electrolytic 2200 μF/25V	CE04W1E222M
C104	254 4256 088	Electrolytic 1000 μF/25V	CE04W1E102M
C105	254 4260 061	Electrolytic 3.3 μF/50V	CE04W1H3R3M
C106	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M

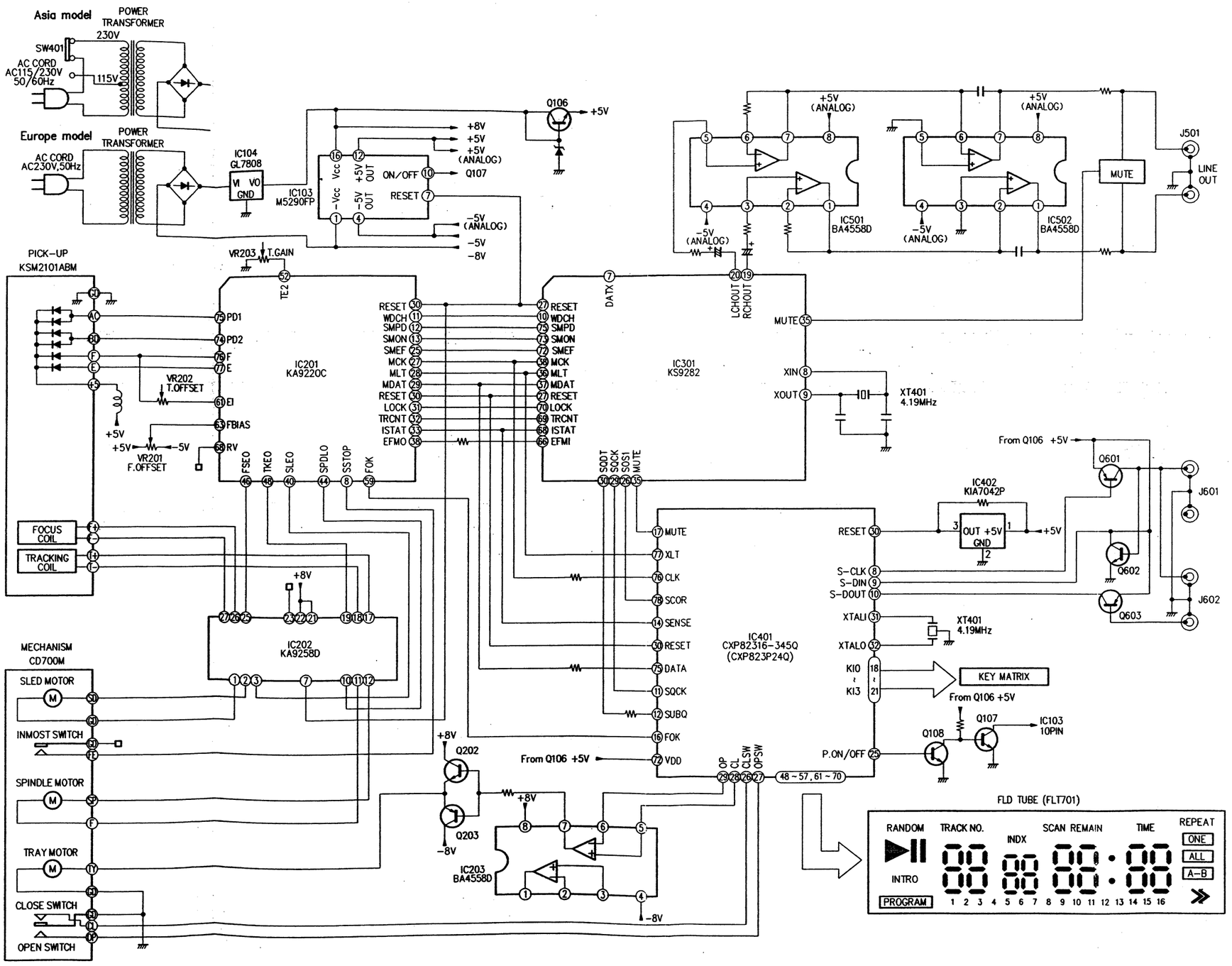
Ref No.	Part No.	Part Name	Remarks
C109	253 1174 018	Ceramic cap. 0.01 μF/16V	CK14Y1C103M
C110	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C112,113	254 4261 028	Electrolytic 100 μF/50V	CE04W1H101M
C114	253 1026 001	Ceramic cap. 0.047 μF/50V	CK45F1H473Z
C115	254 4261 028	Electrolytic 100 μF/50V	CE04W1H101M
C116	254 4260 087	Electrolytic 10 μF/50V	CE04W1H100M
C117	254 4256 059	Electrolytic 220 μF/25V	CE04W1E221M
C118	254 4260 087	Electrolytic 10 μF/50V	CE04W1H100M
C119	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M
C120	253 1026 001	Ceramic cap. 0.047 μF/50V	CK45F1H473Z
C121,122	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M
C201	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M
C202	255 1121 083	Film cap. 0.033 μF/50V	CQ93M1H333J
C203,204	254 4252 040	Electrolytic 220 μF/10V	CE04W1A221M
C205	257 0014 032	Ceramic chip 0.1 μF/25V	CK73F1E104Z
C206	254 4252 040	Electrolytic 220 μF/10V	CE04W1A221M
C207–209	257 0012 063	Ceramic chip 0.01 μF/50V	CK73F1H103Z
C210–212	257 0014 032	Ceramic chip 0.1 μF/25V	CK73F1E104Z
C213	254 4260 074	Electrolytic 4.7 μF/50V	CE04W1H4R7M
C214	254 4254 022	Electrolytic 33 μF/16V	CE04W1C330M
C215	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M
C216	257 0012 005	Ceramic chip 1000 pF/50V	CK73F1H102Z
C217	257 0016 988	Ceramic chip 30 pF/50V	CC73CH1H300J (Temp.)
C218	255 1120 084	Film cap. 4700 pF/50V	CQ93M1H472J
C219	257 0014 032	Ceramic chip 0.1 μF/25V	CK73F1E104Z
C220	257 0007 900	Ceramic chip 1000 pF/50V	CC73SL1H102J
C221	257 0014 032	Ceramic chip 0.1 μF/25V	CK73F1E104Z
C222	257 0012 050	Ceramic chip 6800 pF/50V	CK73F1H682Z
C223	257 0012 021	Ceramic chip 2200 pF/50V	CK73F1H222Z
C224	257 0013 004	Ceramic chip 0.047 μF/50V	CK73F1H473Z
C225	254 4260 016	Electrolytic 0.22 μF/50V	CE04W1HR22M
C226,227	257 0016 917	Ceramic chip 220 pF/50V	CC73CH1H221J (Temp.)
C228	257 0012 089	Ceramic chip 0.022 μF/50V	CK73F1H223Z
C229	257 0013 910	Ceramic chip 0.068 μF/50V	CK73F1H683Z
C230	254 4260 087	Electrolytic 10 μF/50V	CE04W1H100M
C231	254 4260 032	Electrolytic 0.47 μF/50V	CE04W1HR47M
C232	257 0012 063	Ceramic chip 0.01 μF/50V	CK73F1H103Z
C233	253 9030 086	Ceramic cap. 0.022 μF/25V	CK45=1E223K
C234	254 4254 048	Electrolytic 100 μF/16V	CE04W1C101M
C235	254 4252 066	Electrolytic 470 μF/10V	CE04W1A471M
C236	257 0012 063	Ceramic chip 0.01 μF/50V	CK73F1H103Z
C237	254 4254 048	Electrolytic 100 μF/16V	CE04W1C101M
C238	254 4256 046	Electrolytic 100 μF/25V	CE04W1E101M
C239	257 0012 063	Ceramic chip 0.01 μF/50V	CK73F1H103Z
C241,242	254 4252 040	Electrolytic 220 μF/10V	CE04W1A221M
C298	254 3056 014	Electrolytic 1 μF/50V(Bipolar)	CE04D1H010MBP
C299	254 4260 016	Electrolytic 0.22 μF/50V	CE04W1HR22M
C301	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M

Ref. No.	Part No.	Part Name	Remarks	Qty
C302	253 1197 914	Ceramic cap. 0.1 μF/16V	CK14F1C104Z	
C303	255 1122 008	Film cap. 0.047 μF/50V	CQ93M1H473J	
C304	255 1120 026	Film cap. 1500 pF/50V	CQ93M1H152J	
C305,306	253 3615 009	Ceramic cap. 33 pF/50V	CC45SL1H330J	
C309	253 9030 086	Ceramic cap. 0.022 μF/25V	CK45=1E223K	
C310	254 4260 032	Electrolytic 0.47 μF/50V	CE04W1HR47M	
C311	255 1121 083	Film cap. 0.033 μF/50V	CQ93M1H333J	
C401	253 9030 086	Ceramic cap. 0.022 μF/25V	CK45=1E223K	
C406	253 9030 086	Ceramic cap. 0.022 μF/25V	CK45=1E223K	
C407	254 4260 045	Electrolytic 1 μF/50V	CE04W1H010M	
C408	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M	
C409	253 9030 086	Ceramic cap. 0.022 μF/25V	CK45=1E223K	
C501,502	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M	
C503,504	254 4260 074	Electrolytic 4.7 μF/50V	CE04W1H4R7M	
C505,506	253 1055 072	Ceramic cap. 120 pF/50V	CK45B1H121K	
C507,508	255 1121 096	Film cap. 0.039 μF/50V	CQ93M1H393J	
C509,510	255 1120 042	Film cap. 2200 pF/50V	CQ93M1H222J	
C511,512	254 4252 037	Electrolytic 100 μF/10V	CE04W1A101M	
C513,514	253 1001 000	Ceramic cap. 330 pF/50V	CK45B1H331K	
C515,516	254 3056 043	Electrolytic4.7 μF/50V(Bipolar)	CE04D1H4R7MBP	
C517,518	253 1004 007	Ceramic cap. 1000 pF/50V	CK45B1H102K	
C519	254 4260 087	Electrolytic 10 μF/50V	CE04W1H100M	
C601	253 1004 007	Ceramic cap. 1000 pF/50V	CK45B1H102K	
C602	253 1001 000	Ceramic cap. 330 pF/50V	CK45B1H331K	
C603,604	253 1004 007	Ceramic cap. 1000 pF/50V	CK45B1H102K	
OTHER PARTS				Qty
	—	(P.W.board)		(1)
L201,202	960 0010 307	Inductor 10 μH	D33010070052	2
SW701–707	DCD 2150 426	Tact switch	G18000027000	7
⚠ PT101	960 0035 [illegible]	Power transformer	[illegible] Europe model	[illegible]
⚠ PT101	960 0035 405	Power transformer	[illegible] Asia model	[illegible]
J501	960 0010 006	2 P pin jack	G60102013000	1
J601,602	960 0004 407	Mini jack	G40103110201	2
⚠ SW401	960 0038 101	Slide switch (Voltage switch)	[illegible] Asia model only	[illegible]
XT301	DCD 2150 403	Crystal 16.9344 MHz	E80016R93401	1

Ref No.	Part No.	Part Name	Remarks	
XT401	399 0107 007	Ceramic resonator CST4.19MGW	E8304R100000	1
⚠ CP101	—	Connector holder 2 P	L10635310200	1
CP201	—	Connector wire 8 P	L10153014081	1
CP202	—	Connector wire 8 P Red	L10153014082	1
CP203	—	Connector holder 6 P	L10252670601	1
CP204	—	Connector holder 5 P	L10252670501	1
CP401	—	26 P FP cable	L13152045261	1
CP701	—	Connector wire 3 P 140 mm	L00007590001	1
CP701	960 0011 005	26 P FP cable	L13152044261	1
TP001–004	—	Test pin	L42100004000	4
TP005,006	—	Test pin (2P)	L42100005000	1
	—	Heat sink	212002008601	1
FLH701	960 0007 200	FLD holder	432002015601	1
J001–098	—	Jumper wire	L40200002002	98
J099,100	—	Jumper wire	L40200002002	2
J101	—	Jumper wire	L40200002002 Europe model only	1
J102	—	Jumper wire	L402000020002	1
CP102B	—	Wire Black L=160 mm	L000016122001 Asia model only	1
CP102R	—	Wire Red L=160 mm	L000016122201 Asia model only	1
CP102W	—	Wire White L=160 mm	L000016122901 Asia model only	1

CD PLAYER SECTION

BLOCK DIAGRAM



SCHEMATIC DIAGRAM

1 2 3 4 5 6

MAIN UNIT

MECHANISM ASS'Y

CP201

CP202 (RED)

CP203

CP204

S.L AND

SPINDLE MOTOR

SLED MOTOR

SLED SW

TRAY MOTOR

FOCUS

TRACKING

IC201 ASP KA9220C

IC202 KA92580

IC203 BA4558O

IC301 DSP KS9282

IC401 MICON CXP82316-345Q (CXP823P24Q)

IC402 K1A7042P

IC102 ICP-N15

XT301 16.9344MHz

XT401 4.19MHz

Q101 2SB1185(E,

Q104 KTA1266(Y)

Q106 KTC3202(Y

Q107 DTC114ES

Q108 DTC114ES

Q201 KTA1270 (Y)

Q202 KTC3205(Y)

Q203 KTA1273(Y)

D201 IN4148M

D111 IN4148M

D112 IN4148N

D113 MTZ5.6B

D114 MTZ5.6

L201 10μH

L202 10μH

TP1 2.5V

TP3 FEO

TP4 FEI

TP5 TEO

TP6 TEI

VR201 4.7k (F.O)

VR202 22k (T.O)

VR203 22k (T.G)

MCK(CLK)

MLT(XLT)

MOAT(DATA)

RESET

UNLOAD

LOAD

CLSW

OPSW

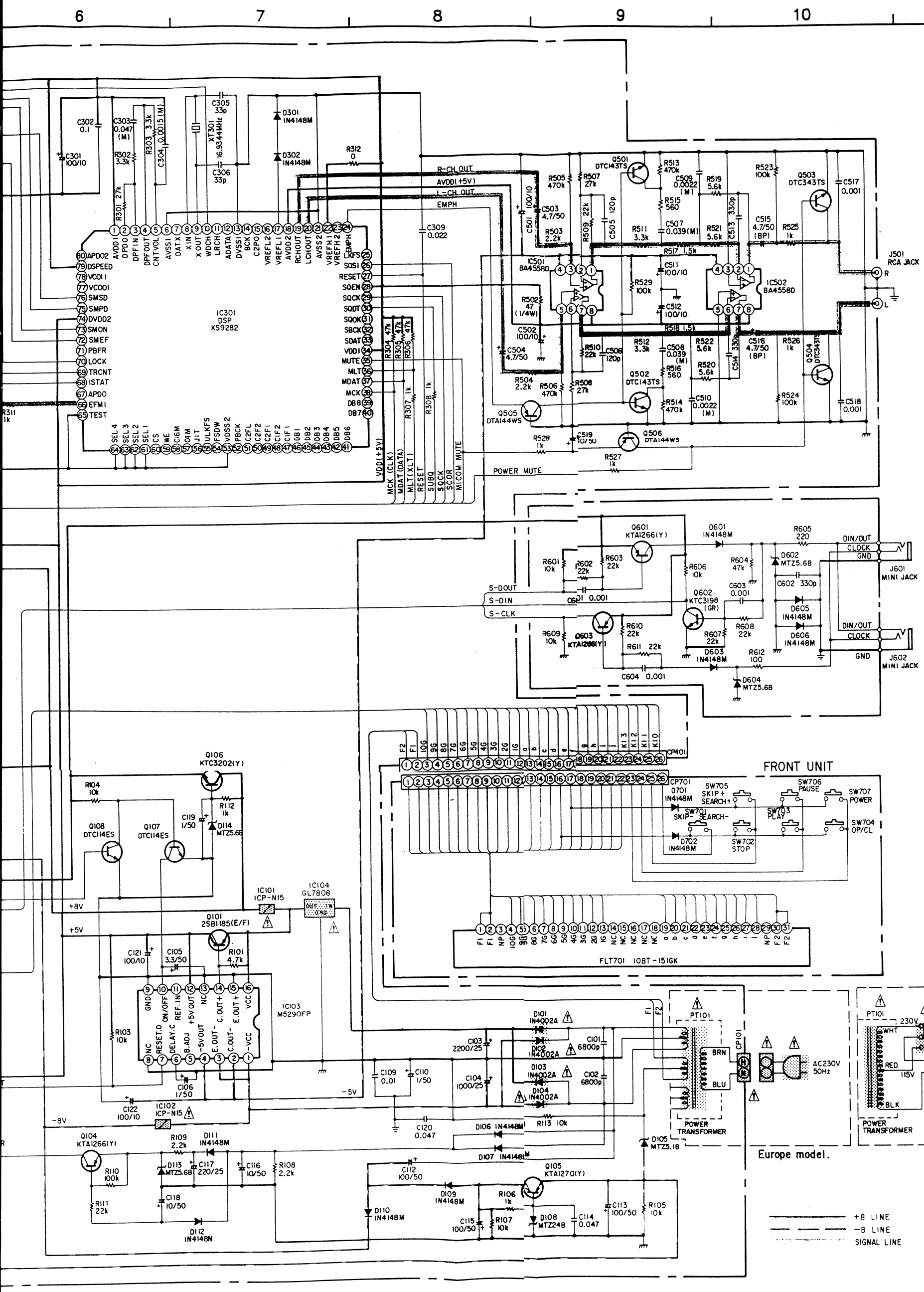
POWER MUTE

+8V

+5V

-8V

CD PLAYER SECTION



NOTES

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

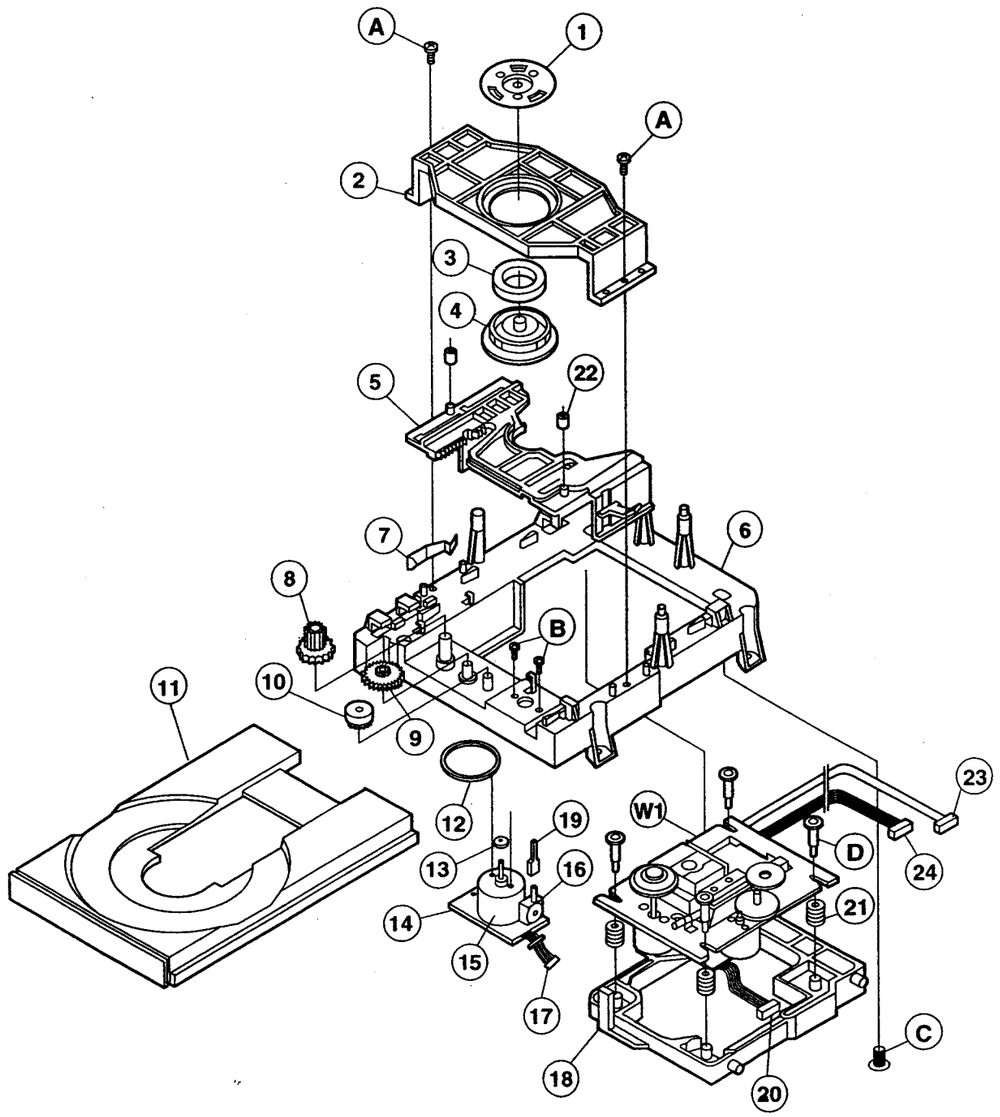
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

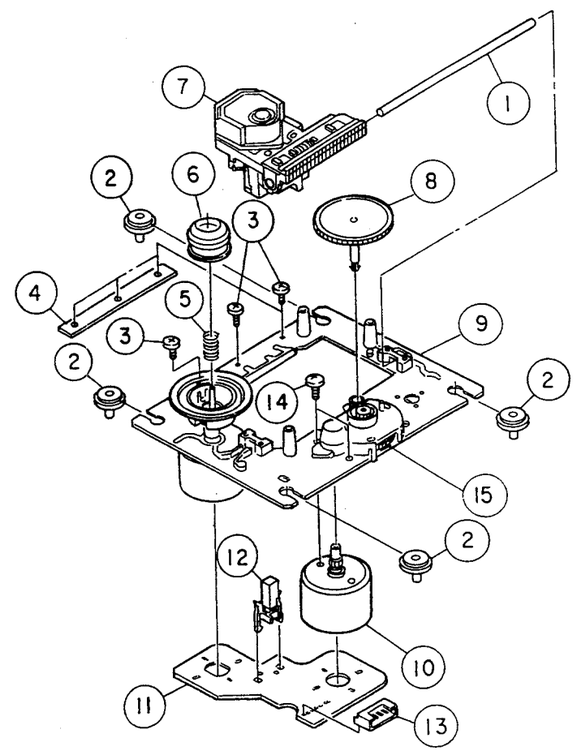
DISASSEMBLY OF CD MECHANISM

1 2 3 4 5 6

LOADER SECTION



TRAVERSE SECTION



A B C D E

PARTS LIST OF CD MECHANISM UNIT

TRAVERSE SECTION (Part No.:960 0011 102)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	S49 1756 501	Slide shaft		1
2	S26 2553 801	Insulator (S)		4
3	S26 4138 601	Tapping screw 2x5		6
4	—	Bracket		1
5	S26 2519 101	Coil spring		1
6	S26 2547 701	Center ring		1
7	499 0171 003	Optical pick up KSS210A		1
8	S26 2518 802	Gear (A)		1
9	SX2 6251 331	T/T motor chassis Ass'y		1
10	SX2 6251 321	Gear motor Ass'y		1
11	S16 3967 812	P.W.board Ass'y		1
12	S15 7208 511	Leaf switch		1
13	S15 6472 211	Connector pin		1
14	S76 2125 515	Screw 2x3 +P		1
15	S26 2608 101	Gear (B)		1

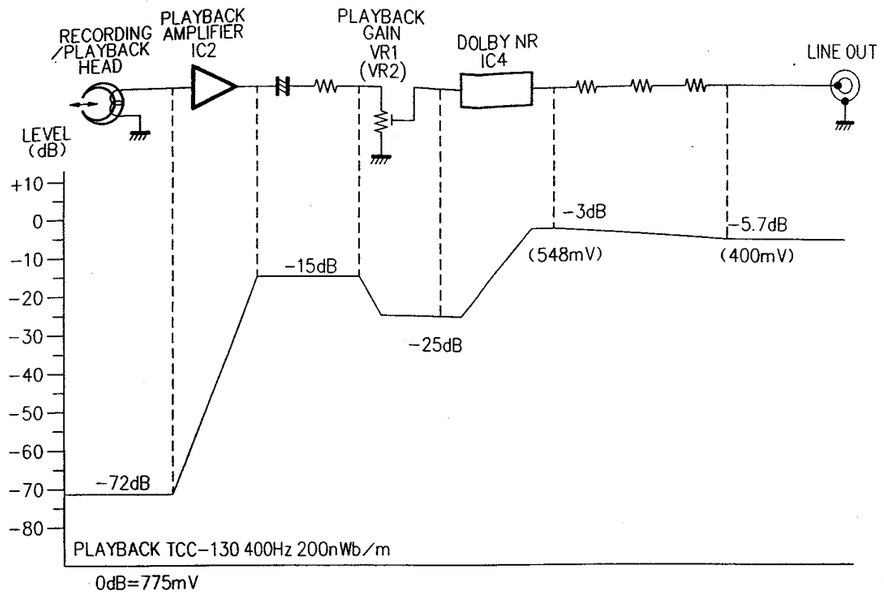
LOADER MECH. SECTION

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	960 0046 902	Clamper plate	447000406000	1
2	960 0046 106	Flapper	270000036000	1
3	960 0047 202	Magnet (Ⅲ)	7600GZ3400L1	1
4	960 0046 601	Clamper(Ⅱ)	433000043000	1
5	960 0046 708	Frame guide	435000642000	1
6	960 0046 203	Mech. base	320000510000	1
7	960 0046 407	Rack spring	372000336000	1
8	960 0045 806	Load gear	247000058000	1
9	960 0045 602	Center gear	247000045000	1
10	960 0045 709	Pulley gear	247000046000	1
11	960 0047 008	Tray	460000019001	1
12	960 0045 903	Tray belt	249000021000	1
13	960 0046 009	Motor pulley	250000008000	1
14	960 0047 105	Motor P.W.board	702001087000	1
15	960 0045 408	DC motor	RF-500TB-14415 G700000160001	1
16	960 0041 703	Leaf switch	G220000010001	1
17	—	Connector wire -5P	130 mm	1
18	960 0046 300	Feed frame	321005130000	1
19	960 0046 504	Holder	432002140000	1
20	—	Connector wire -6P	150 mm	1
21	960 0045 505	Insulator	124000001000	4
22	960 0046 805	Stopper	438000059000	1
23	—	Connector wire -8P	170 mm	1
24	—	Connector wire -8P	190 mm	1
25				
A	960 9000 318	Screw 3x10 B tite	B020HF6103B	2
B	960 9000 305	Screw 2.6x5	B000HD5051B	2
C	960 9000 321	Screw 3x8	1500HZ0780L1	1
D	960 9000 334	Screw 12.5x18.5	150000090000	4
W1	960 0011 102	CD mechanism	KSM-2101AB	1

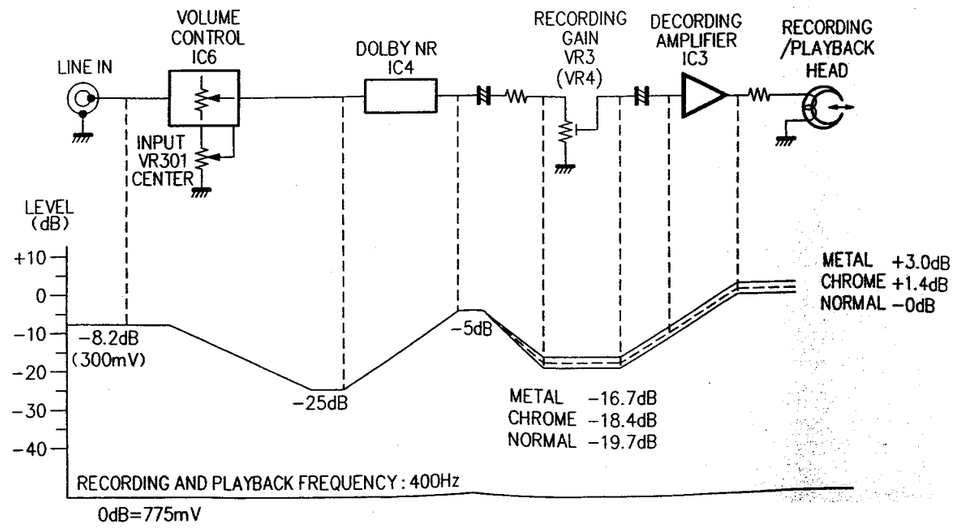
CASSETTE DECK SECTION

LEVEL DIAGRAM

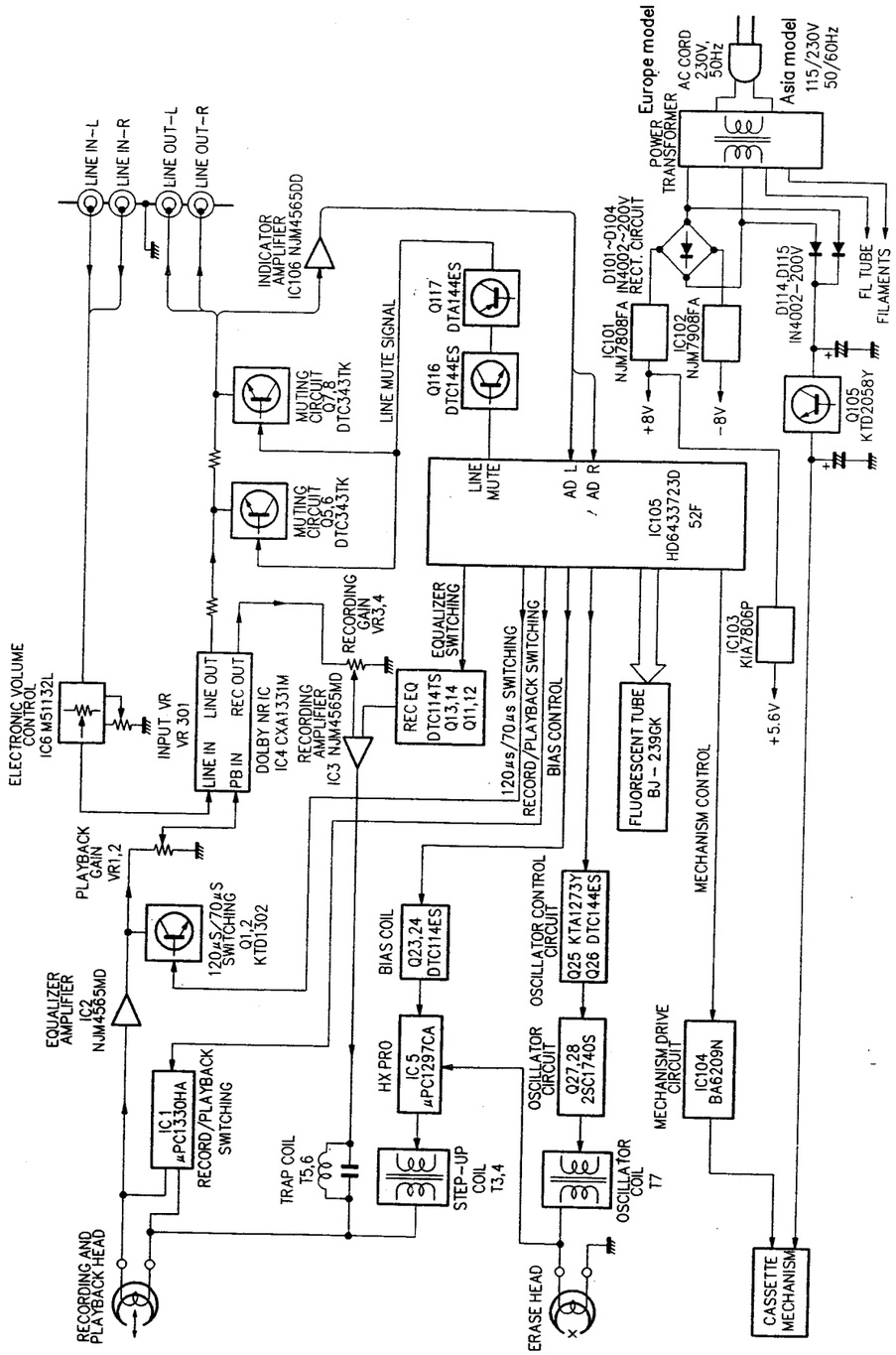
PLAYBACK SYSTEM



RECORDING SYSTEM



BLOCK DIAGRAM

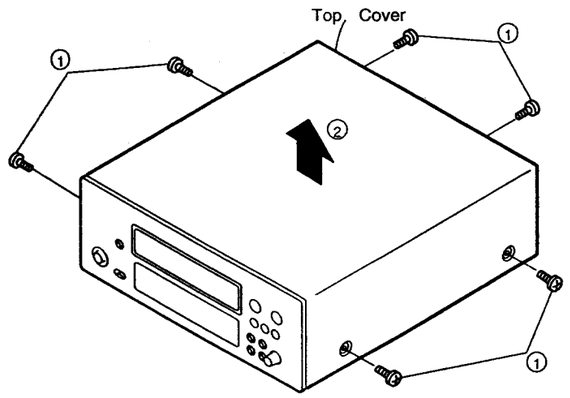


DISASSEMBLY PROCEDURES

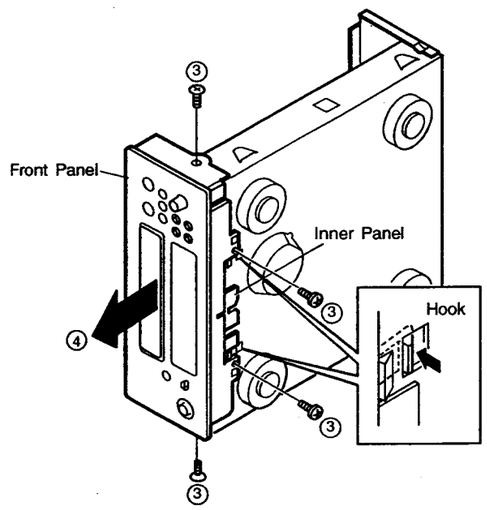
(Assembly is performed in the reverse order.)

1. Top Cover and Front Panel

① Remove 6 screws mounting on the Top Cover.
② Detach the Top Cover in the arrow direction.

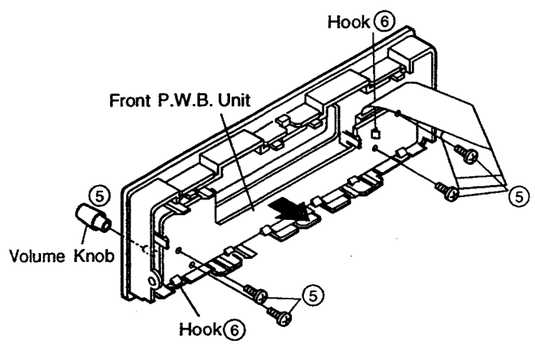


③ Remove 2 each screws fastening the Front Panel on the bottom and both side.
④ While releasing 2 hooks of the Inner Panel from the chassis, pull toward arrow direction and detach the Front Panel and the Inner Panel as a whole.



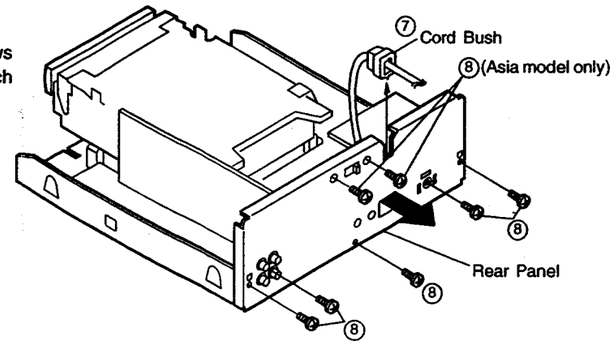
2. Front P.W.B. Unit

⑤ Pull out the Volume Knob, and remove 4 screws fastening the Front P.W.B. Unit.
⑥ While releasing 11 hooks, detach the Front P.W.B. Unit in the arrow direction.



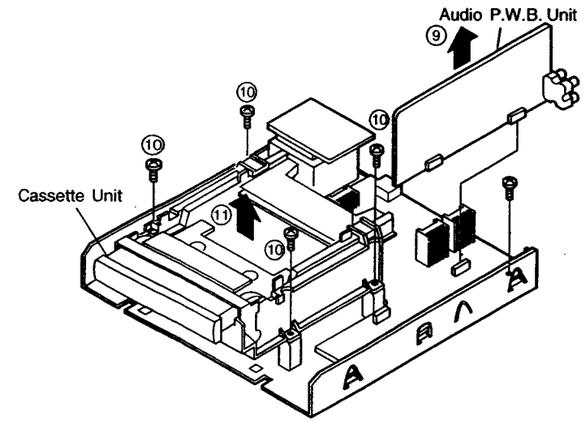
3. Rear Panel

⑦ Remove the Cord Bush from the Rear Panel.
⑧ Remove 5 screws (Europe model) / 7 screws (Asia model) fixing the Rear Panel, then detach the Rear Panel in the arrow direction.



4. Audio P.W.B. Unit

⑨ Pull out the Audio P.W.B. Unit from connector as shown in figure.

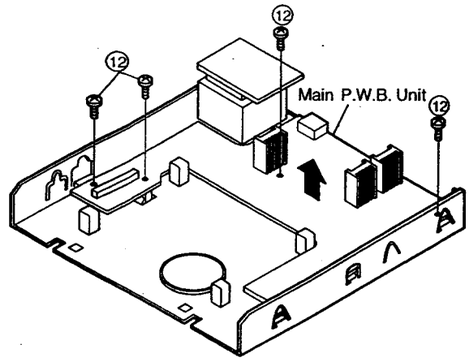


5. Cassette Unit

⑩ Remove 4 screws mounting the Cassette Unit on the chassis.
⑪ Detach the Cassette Unit in the arrow direction.

6. Main P.W.B. Unit

⑫ Remove 4 screws fastening the Main P.W.B. Unit and detach the Main P.W.B. Unit in the arrow direction.



CASSETTE DECK SECTION

ADJUSTMENTS

Adjusting and Checking the Mechanism Section

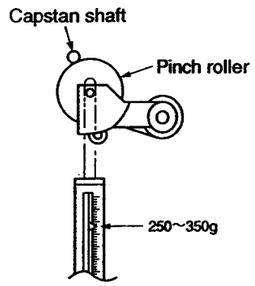
1. Replacement of the pinch roller

Before replacing the pinch roller, clean the tape contact surface of the pinch roller and the tape contact surface of the capstan shaft. After replacement, run a C-90 tape without a pad and check for the presence of tape curl at the tape guide portion of the head.

2. Checking the pinch roller pressure

Set to the playback condition and hook a bar-type spring scale to the bracket above the center line of the pinch roller. Pull the pinch roller away from the capstan shaft, then allow the pinch roller to come into contact with the capstan shaft and check that the reading of the bar-type spring scale is between 250 g and 350 g when the pinch roller starts to rotate.

Replace the pinch roller when the value falls outside of the specified range.



3. Replacement of the recording/playback head assembly

Perform this procedure after removing the front panel.

3-1 Removal of the head assembly

(1) Remove the 2 head base fastening screws.

(2) Remove the head base from the reed holder and the wire connector.

3-2 Mounting the recording/playback head assembly

Perform by following the steps of Section 3-1 Removal of the head assembly in reverse.

4. Adjustment of the recording/playback head

Azimuth adjustment

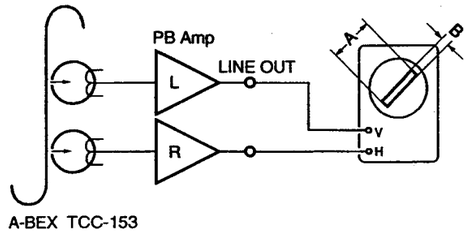
Load side A of the A-BEX TCC-153 test tape facing forward, and adjust.

(1) Play in the FWD direction and turn the azimuth adjustment nut for the FWD side so that the Lissajous's figure becomes maximum at (A) and minimum at (B).

(2) Play in the REW direction and turn the azimuth adjustment nut for the REW side as adjusting the FWD side method.

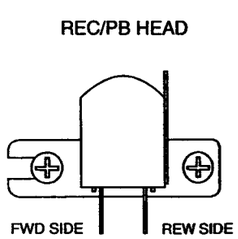
(3) Adjust (1) and (2) again.

(4) Apply screw lock to the adjustment locations.



A-BEX TCC-153

REC/PB HEAD



5. Checking the winding torque

Load a cassette type torque meter (Sony TW2111A at the FWD side) and check that the reading of the torque meter during playback is 30 to 70 g-cm at the center value.

When outside of the specified value range, check the voltage of the reel motor (approx. 4 V). When the voltage value is low, the torque is weak, and when when high, the torque is strong.

6. Checking the back tension torque at the time of recording and playback

Load a cassette type torque meter (Sony TW2111A at the FWD side) and check that the reading of the torque meter during playback is 2 to 6 g-cm and that there is no unevenness.

7. Checking the FF and REW torque

Load a cassette type torque meter (Sony TW2231) and check that the value indicated by the torque meter for winding and rewinding is between 90 and 180 g-cm.

8. Checking the FF and REW time

Load a DENON HD-X/60 cassette tape, and check that the time for FF and REW is between 80 and 110 seconds. When outside of the specified range, check Steps 5 and 6.

9. Checking the erroneous erasure prevention, and the metal and chrome switch operations

Check that detection lever is operating the switch properly depending upon the presence or absence of a hole.

Adjusting and Checking the Electrical Section

Measuring instruments needed for the adjustments

(1) Low frequency oscillator
(2) Variable resistance attenuator
(3) Electronic voltmeter
(4) Oscilloscope
(5) Frequency counter
(6) Adjustment screwdriver
(7) 4-sided adjustment rod for trap coil adjustments
(8) Test tapes
(Sony TY-224)
(A-BEX TCC-153, TCC-130, TCC-262B/162B)
(DENON HD-X/60)
(9) Mirror cassette for the transport (A-BEX TCC-902)

Adjustment precaution

(1) Before adjustments, use gauze or a swab moistened with alcohol to wipe the surface of the heads, the capstan shaft, and the pinch roller.
(2) Demagnetize the record/playback head and the erase head with a head eraser.
(3) Completely demagnetize the driver to be used for the adjustments.
(4) Unless otherwise specified, set the various operation controls as indicated below.
Input/output controls: Center
Dolby NR switch: Off

1. Tape transport check

Load the mirror cassette for the transport, and illuminate the area around the fixed guide of the record/playback head with a lamp and observe.

Check that the tape edge is not hitting the tape guide portion.

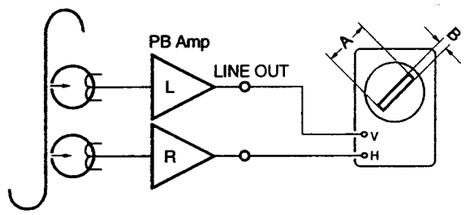
Note that the tape transport is the greatest factor affecting the performance of the cassette deck. Never move the inspection locations without good reason.

For information about replacement and adjustment of the record/playback head, see the section "Adjustment and checking of the mechanism".

2. Azimuth adjustment

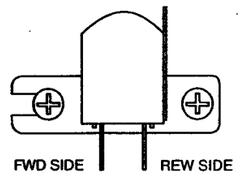
2-1 After making the tape transport check, load the test tape (A-BEX TCC-153).

2-2 Play back the test tape and turn the azimuth adjustment nut so that the Lissajous's figure becomes maximum at (A) and minimum at (B).



A-BEX TCC-153

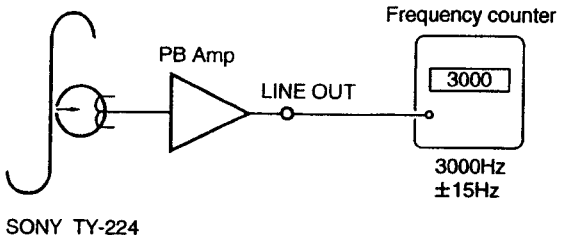
REC/PB HEAD



3. Tape speed check and adjustment

3-1 Connect the frequency counter to the LINE OUT pin and load the test tape (Sony TY-224).

3-2 Playback a test tape. At about halfway through the tape, where the tape transport is stable, confirm that the frequency counter will have a reading within the range of 3,000 Hz ±15 Hz.



SONY TY-224

4. Adjustment of the playback system

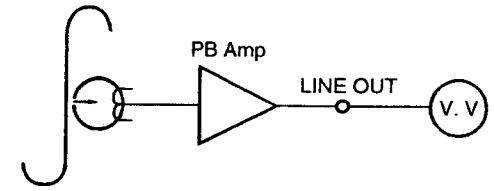
4-1 Playback level

Play back the test tape for the Dolby standard level (A-BEX TCC-130), and adjust VR1 (Left channel) and VR2 (right channel) so that the level of the LINE OUT pin becomes -5.7 dBm (400 mV). (Load resistance of 47 kohm)

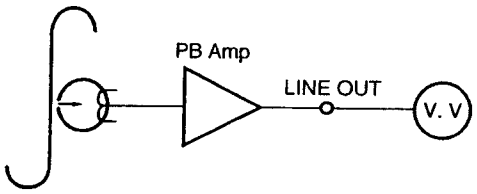
4-2 Checking the playback frequency respones

Play back the test tape (A-BEX TCC-262B/162B), and check that the frequency response satisfies the standard.

NOTE After making the azimuth adjustment with the 8 kHz at the start of the A-BEX TCC-262B test tape, perform check of the frequency respones.
Also, after the check make an azimuth adjustment again with A-BEX TCC-153, then apply screw lock.

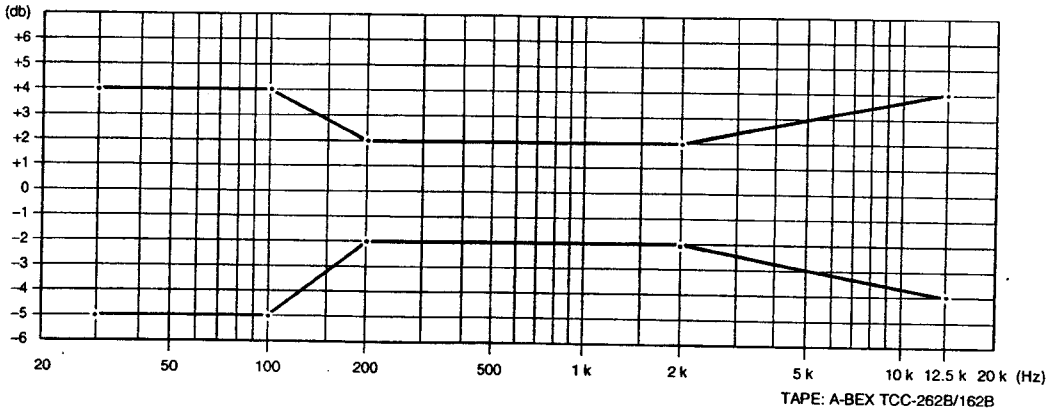


A-BEX TCC-130



A-BEX TCC-262B/162B

Playback Frequency Response



TAPE: A-BEX TCC-262B/162B

CASSETTE DECK SECTION

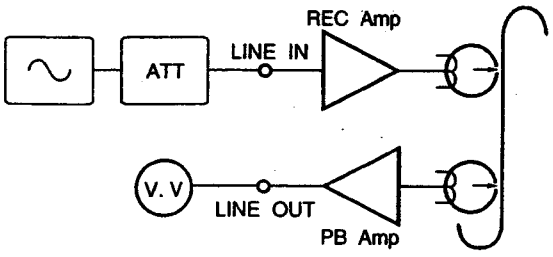
5. Adjustment of the recording system

5-1 Adjustment of the recording and playback overall frequency respons

(1) Load the DENON HD-X/60 test tape, record a signal of-20 dBm (30mV) 1 kHz input level, and play back.

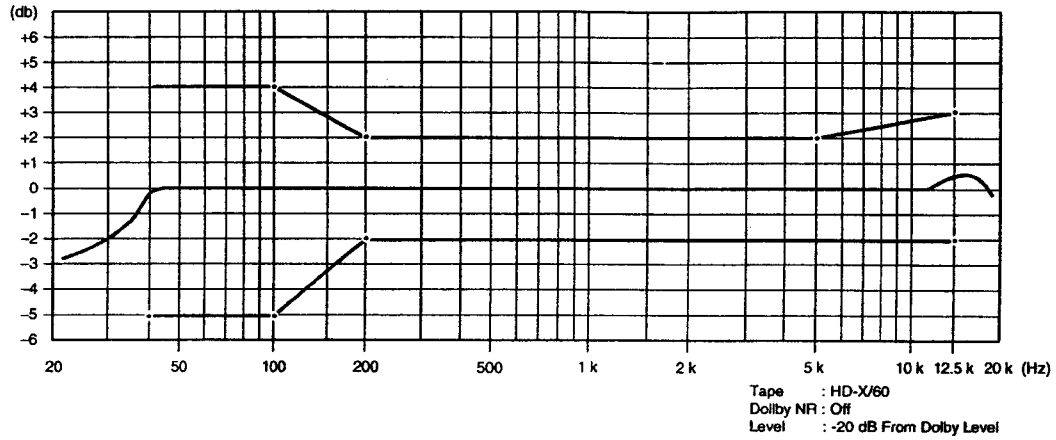
(2) Set the input signal to 10 kHz, record, and play back.

Adjust VR5 (left channel) and VR6 (right channel) so that the response specifications of the diagram below are satisfied with respect to the 1 kHz output level.



DENON HD-X/60

Recording/Playback Overall Frequency Response



Tape : HD-X/60
Dolby NR : Off
Level : -20 dB From Dolby Level

5-2 Adjustment of the recording/playback level

(1) Load the DENON HD-X/60 test tape, record a signal of 1 kHz (-20 dBm), and play back.

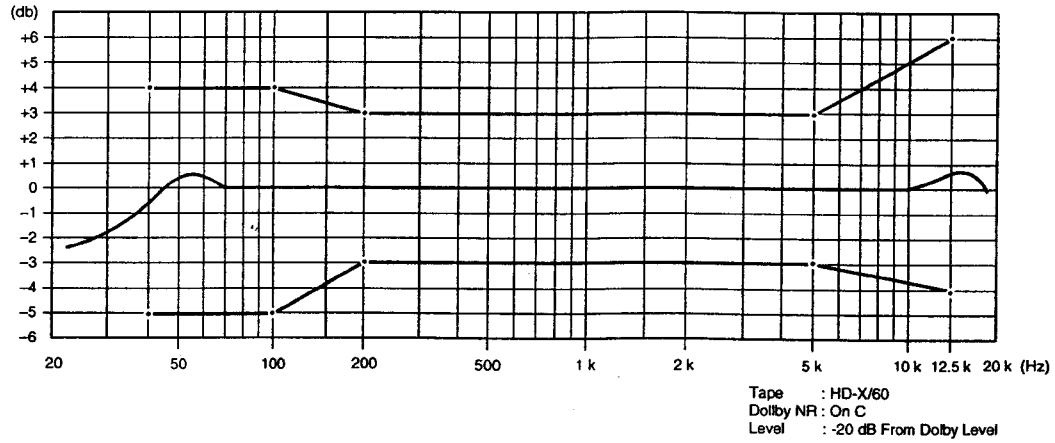
(2) Adjust VR3 (left channel) and VR4 (right channel) so that the output of the LINE OUT pin becomes the same as the output at the time of the recording monitor.

5-3 Checking the Dolby C recording and playback overall frequency response.

(1) Set the Dolby NR switch to the "C" positions.

(2) Use the DENON HD-X/60 test tape to record and play back according to the outline of Section 5-1, then check that the response specifications have been satisfied.

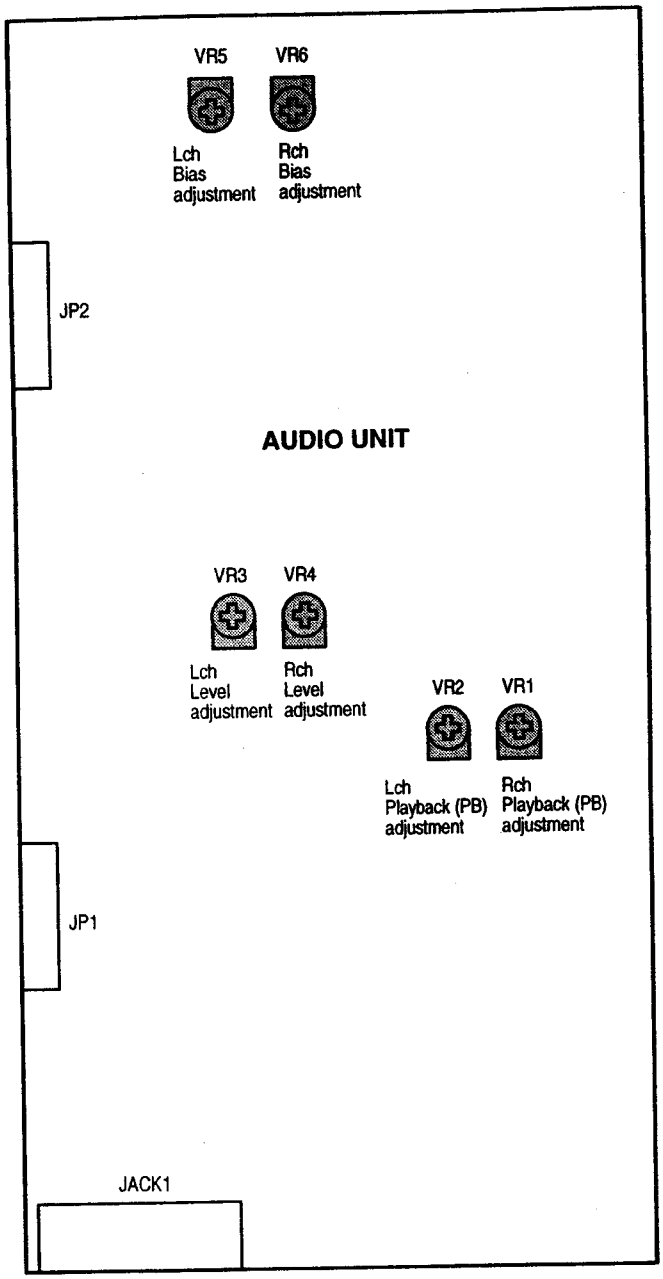
Recording/Playback level Overall Frequency Response



Tape : HD-X/60
Dolby NR : On C
Level : -20 dB From Dolby Level

Outline Diagram of Adjustment Locations

Audio Unit Ass'y (Component side)

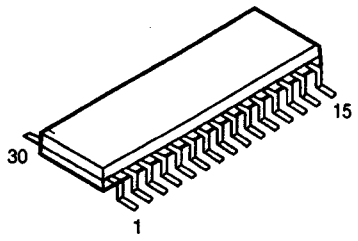


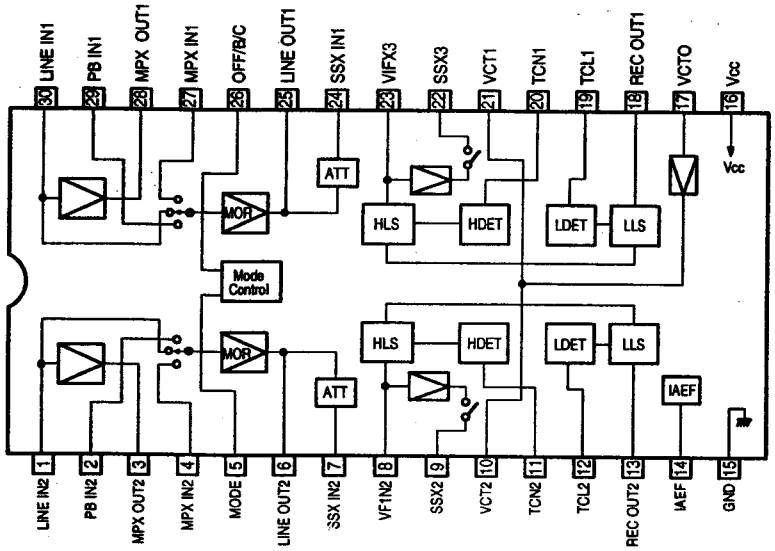
CASSETTE DECK SECTION

SEMICONDUCTORS

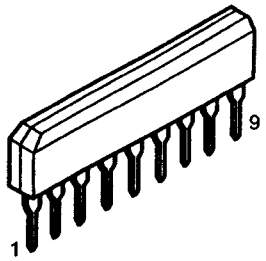
● IC's

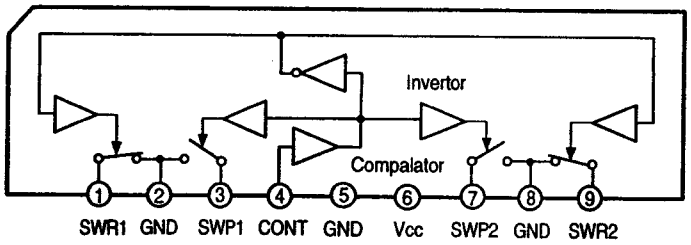
CXA1331M (IC004)



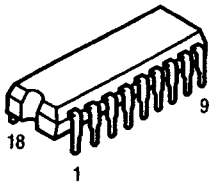


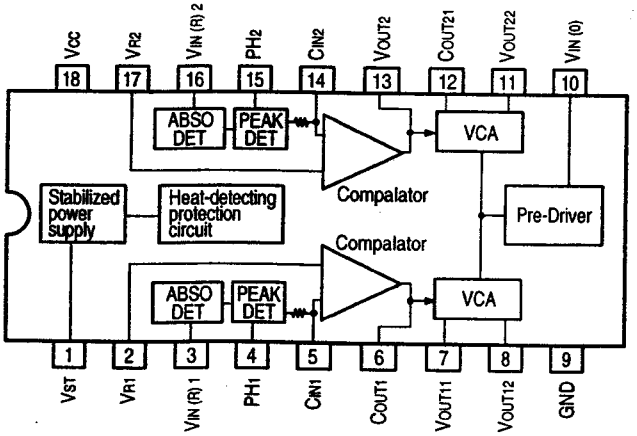
µPC1330HA (IC001)





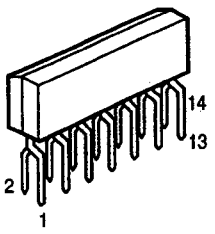
µPC1297CA (IC005)
Dolby HX Pro.

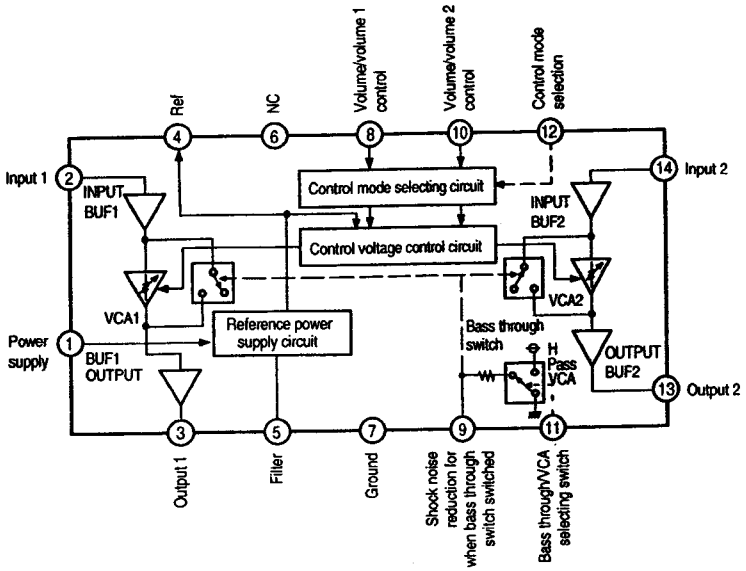




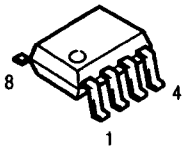
CASSETTE DECK SECTION

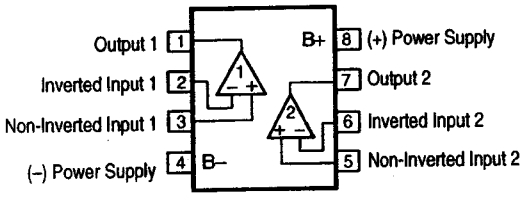
M51132L (IC006)



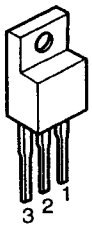


NJM4565DD (IC106)
NJM4565MD (IC002,003)



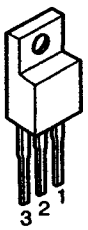


NJM7908FA (IC102)
(Three-terminal negative constant voltage power supply)



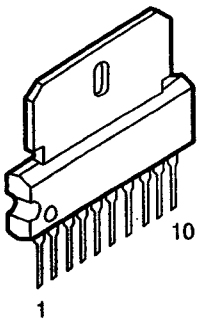
1: Output
2: Input
3: GND

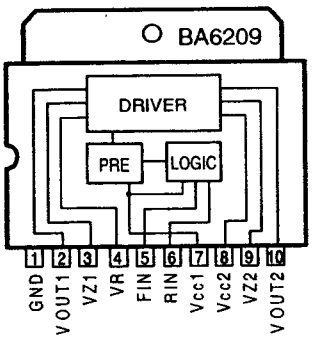
KIA7806P (IC103)
NJM7808FA (IC101)
(Three-terminal positive constant voltage power supply)



1: Output
2: GND
3: Input

BA6209N (IC104)
Reversible motor driver (2 circuit built in)



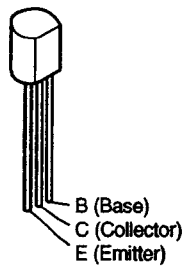


Pin No.	Port Name	Function Name	I/O	Ini	ACT	Function
23	PA1/AN1		O	—	—	Not used.
24	PA2/AN2		O	—	—	Not used.
25	PA3/AN3	POWER ON/OFF	O			Power switch.
26	PA4/AN4	CLOSE SW	I	H	L	Close switch input.
27	PA5/AN5	OPEN SW	I	H	L	Open switch input.
28	PA6/AN6	LOAD	O	H	L	Close motor signal.
29	PA7/AN7	UNLOAD	O	H	L	Open motor signal.
30	RST	RESET	—	—	H	Reset input.
31	EXTAL	XTAL IN	I	—	—	Resonator input.
32	XTAL	XTAL OUT	O	—	—	Resonator output.
33	VSS	VSS	O	—	—	GND.
34	PD0/S0		O	—	—	Not used.
35	PD1/S1		O	—	—	Not used.
36	PD2/S2		O	—	—	Not used.
37	PD3/S3		O	—	—	Not used.
38	PD4/S4		O	—	—	Not used.
39	PD5/S5		O	—	—	Not used.
40	PD6/S6		O	—	—	Not used.
41	PD7/S7		O	—	—	Not used.
42	PF0/S8		O	—	—	Not used.
43	PF1/S9		O	—	—	Not used.
44	PF2/S10		O	—	—	Not used.
45	PF3/S11		O	—	—	Not used.
46	PF4/S12		O	—	—	Not used.
47	PF5/S13		O	—	—	Not used.
48	PF6/S14	j	O			FL tube indication segment terminal (j).
49	PF7/S15	i	O			FL tube indication segment terminal (i).
50	S16	h	O			FL tube indication segment terminal (h).
51	S17	g	O			FL tube indication segment terminal (g).
52	S18	f	O			FL tube indication segment terminal (f).
53	S19	e	O			FL tube indication segment terminal (e).
54	S20	d	O			FL tube indication segment terminal (d).
55	T15/S21	c	O			FL tube indication segment terminal (c).
56	T14/S22	b	O			FL tube indication segment terminal (b).
57	T13/S23	a	O			FL tube indication segment terminal (a).
58	T12/S24		O	—	—	Not used.
59	T11/S25		O	—	—	Not used.
60	T10/S26		O	—	—	Not used.
61	T9/S27	1G	O			FL tube indication digit terminal 1G.
62	T8/S28	2G	O			FL tube indication digit terminal 2G.
63	T7	3G	O			FL tube indication digit terminal 3G.
64	T6	4G	O			FL tube indication digit terminal 4G.
65	T5	5G	O			FL tube indication digit terminal 5G.
66	T4	6G	O			FL tube indication digit terminal 6G.
67	T3	7G	O			FL tube indication digit terminal 7G.
68	T2	8G	O			FL tube indication digit terminal 8G.
69	T1	9G	O			FL tube indication digit terminal 9G.
70	T0	10G	O			FL tube indication digit terminal 10G.
71	VFDP	VFDP				−24V.
72	VDD	VDD				+5V.
73	NC		—	—	—	
74	PG0					
75	PG1	DATA	O	H	H/L	Serial data output signal for DSP.
76	PG2	CLK	O	H	H/L	Serial data transfer clock output signal.
77	PG3	XLT	O	H	L	Serial data latch output signal (latches data at falling).
78	PE0/INT0	SCOR	I	L	H	Sub-code sync signal.
79	PE1/INT1		I	—	—	Connect to GND.
80	PE2/INT2		I	—	—	Connect to GND.

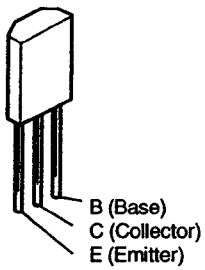
CASSETTE DECK SECTION

• TRANSISTORS

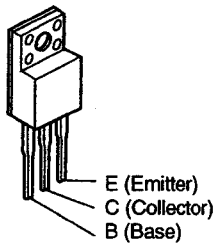
KTD1302



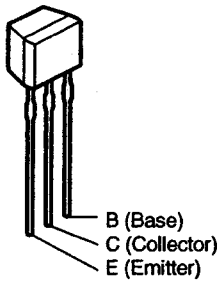
KTA1273 (Y)



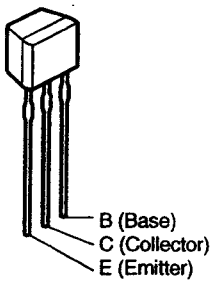
KTD2058 (Y)



2SA933S (S)
2SC1740S (R)



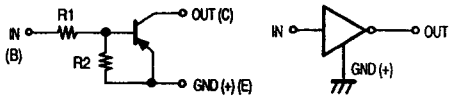
DTA144ES
DTC114ES
DTC114TS
DTC124ES
DTC144ES



DTA144EK } PNP type
DTA144ES }

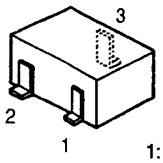
DTC114ES
DTC114TK
DTC114TS
DTC124ES
DTC144EK } NPN type
DTC144ES
DTC343TK

DTA EK/ES series



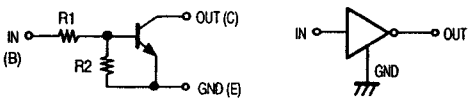
	R1	R2
DTA144ES	47 kohm	47 kohm
DTA144EK	47 kohm	47 kohm

DTA144EK
DTC114TK
DTC144EK
DTC343TK



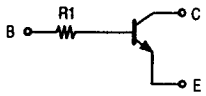
1: GND/Emitter
2: In/Base
3: Out/Collector

DTC EK/ES series



	R1	R2
DTC114ES	10 kohm	10 kohm
DTC124ES	22 kohm	22 kohm
DTC144EK	47 kohm	47 kohm
DTC144ES	47 kohm	47 kohm

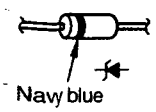
DTC TK/TS series



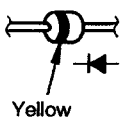
	R1
DTC114TS	10 kohm
DTC114TK	10 kohm
DTC343TK	4.7 kohm

• DIODES

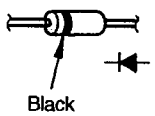
MTZJ3.9B **MTZ9.1B**
MTZ5.6B **MTZ12B**
MTZ6.2B **MTZJ20B**
MTZ7.5B



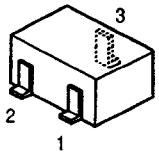
1SS133



1N4002A



KDS226S



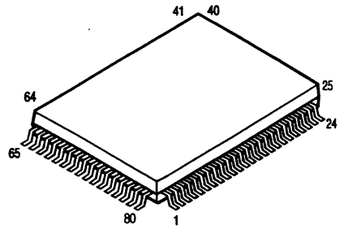
1: Cathode1
2: Anode2
3: Anode1/Cathode2

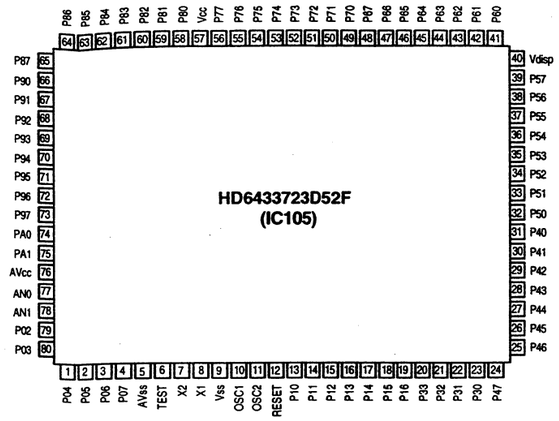
CASSETTE DECK SECTION

MICROPROCESSOR DOCUMENTATION

HD6433723D52F

(IC105)



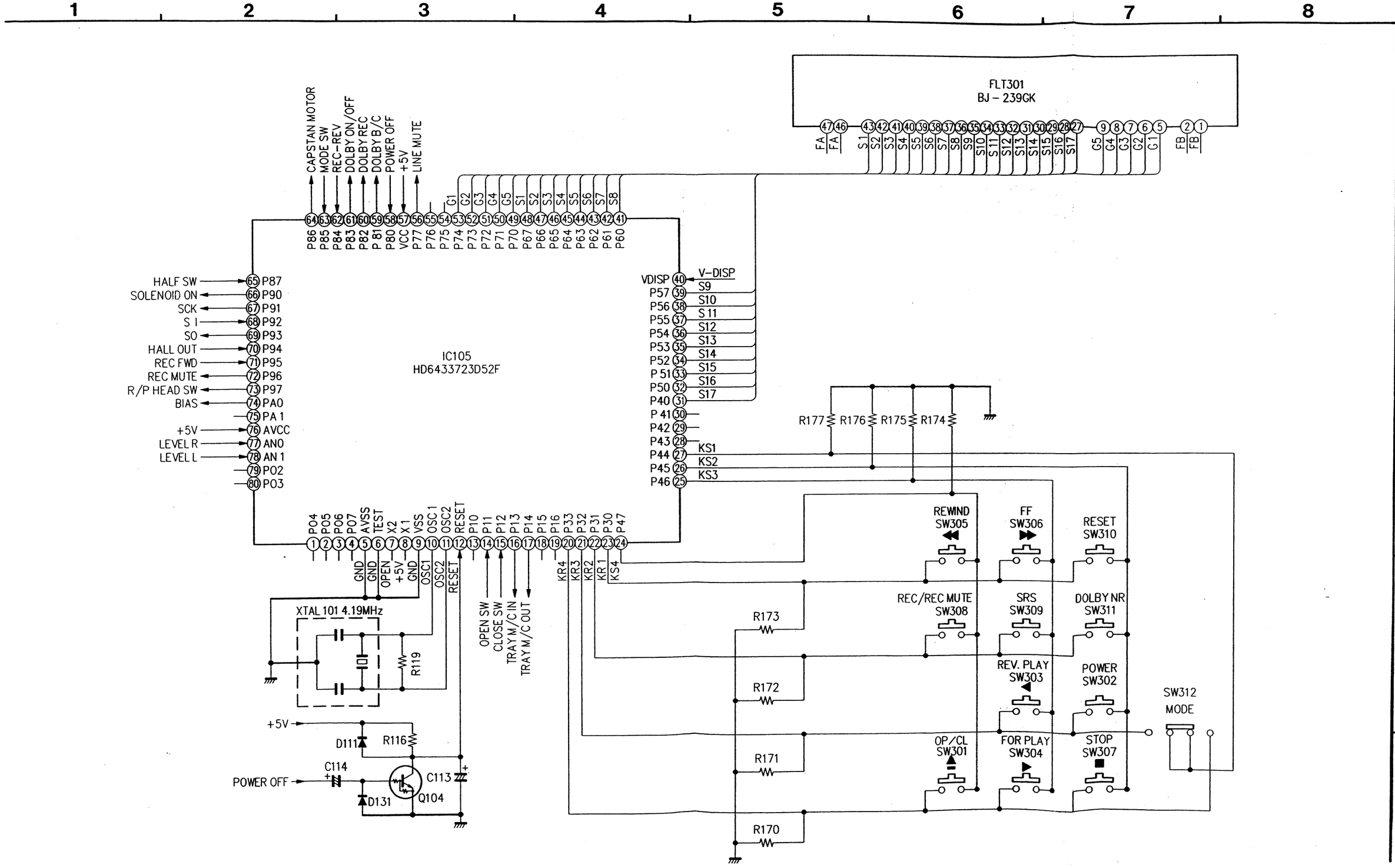


HD6433723D52F Terminal Function

Pin No.	Terminal Name	I/O	PULL U/D	ACT	Port Name	Function
1	P04	I	—	—		Not used.
2	P05	I	—	—		Not used.
3	P06	I	—	—		Not used.
4	P07	I	—	—		Not used.
5	AVSS	I	—	—	AVSS	A/D GND.
6	TEST	I	—	—	TEST	GND.
7	X2	O	—	—	X2	Not used.
8	X1	I	—	—	X1	+5V.
9	VSS	I	—	—	VSS	GND.
10	OSC1	I	—	—	OSC1	System oscillation input terminal (4.19 MHz).
11	OSC2	O	—	—	OSC2	System oscillation output terminal (4.19MHz).
12	RESET	I	—	L	RESET	System reset input signal ("L" to reset).
13	P10	—	—	—		Not used.
14	P11	I	—	H	OPEN SW	Becomes "H" at switch open.
15	P12	I	—	H	CLOSE SW	Becomes "H" at switch close.
16	P13	O	—	H	TARY M/C IN	Becomes "H" at tray loading in.
17	P14	O	—	H	TRAY M/C OUT	Becomes "H" at tray loading out.
18	P15	—	—	—		Not used.
19	P16	—	—	—		Not used.
20	P33	I	P/D GND	H	KR4	Key reading signal 4.
21	P32	I	P/D GND	H	KR3	Key reading signal 3.
22	P31	I	P/D GND	H	KR2	Key reading signal 2.
23	P30	I	P/D GND	H	KR1	Key reading signal 1.
24	P47	O	P/D GND	H	KS4	Key scan signal 4.
25	P46	O	P/D GND	H	KS3	Key scan signal 3.
26	P45	O	P/D GND	H	KS2	Key scan signal 2.
27	P44	O	P/D GND	H	KS1	Key scan signal 1.
28	P43	O	—	H		Not used.
29	P42	O	—	H		Not used.
30	P41	O	—	H		Not used.
31	P40	O	P/D Vdisp	H	S17	FLT indication segment terminal (17).
32	P50	O	P/D Vdisp	H	S16	FLT indication segment terminal (16).
33	P51	O	P/D Vdisp	H	S15	FLT indication segment terminal (15).
34	P52	O	P/D Vdisp	H	S14	FLT indication segment terminal (14).
35	P53	O	P/D Vdisp	H	S13	FLT indication segment terminal (13).
36	P54	O	P/D Vdisp	H	S12	FLT indication segment terminal (12).
37	P55	O	P/D Vdisp	H	S11	FLT indication segment terminal (11).
38	P56	O	P/D Vdisp	H	S10	FLT indication segment terminal (10).
39	P57	O	P/D Vdisp	H	S9	FLT indication segment terminal (9).
40	Vdisp	I	—	—	Vdisp	Power supply for FLT.
41	P60	O	P/D Vdisp	H	S8	FLT indication segment terminal (8).
42	P61	O	P/D Vdisp	H	S7	FLT indication segment terminal (7).
43	P62	O	P/D Vdisp	H	S6	FLT indication segment terminal (6).
44	P63	O	P/D Vdisp	H	S5	FLT indication segment terminal (5).
45	P64	O	P/D Vdisp	H	S4	FLT indication segment terminal (4).
46	P65	O	P/D Vdisp	H	S3	FLT indication segment terminal (3).
47	P66	O	P/D Vdisp	H	S2	FLT indication segment terminal (2).
48	P67	O	P/D Vdisp	H	S1	FLT indication segment terminal (1).
49	P70	O	P/D Vdisp	H	G5	FLT indication grid terminal (5).
50	P71	O	P/D Vdisp	H	G4	FLT indication grid terminal (4).
51	P72	O	P/D Vdisp	H	G3	FLT indication grid terminal (3).
52	P73	O	P/D Vdisp	H	G2	FLT indication grid terminal (2).
53	P74	O	P/D Vdisp	H	G1	FLT indication grid terminal (1).
54	P75	—	—	—		Not used.
55	P76	—	—	—		Not used.
56	P77	O	P/D GND	L	LINE MUTE	"L" to line mute ON, "H" to signal.
57	VCC	I	—	—	VCC	System power supply +5V.
58	P80	I	—	L	POWER OFF	Power OFF detection signal ("L" at OFF).
59	P81	O	—	H/L	DOLBY B/C	Dolby "B" at "H", Dolby "C" at "L".
60	P82	O	—	L/H	DOLBY REC	Dolby recording at "L", Dolby playback at "H".
61	P83	O	—	L/H	DOLBY ON/OFF	Dolby ON at "L", Dolby OFF at "H".
62	P84	I	—	L	INH-R	REV recording inhibit at "L", REV recording at "H".
63	P85	I	—	H	MODE SW	Head up at "H", head down at "L".
64	P86	O	—	H	CPM	Capstan motor ON at "H".
65	P87	I	—	H	HALF SW	Tape detection exists at "H", tape detection not exists at "L".
66	P90	O	—	H	SOL	Solenoid ON at "H".
67	P91	O	—	L	SCK	Serial communication clock signal (cycle: 62.5 µs)
68	P92	I	—	L	SI	Serial data input signal.
69	P93	O	—	L	SO	Serial data output signal.
70	P94	I	—	H/L	HALL OUT	Reel sensor detection input signal.
71	P95	I	—	L	INH-F	FWD recording inhibit at "L", FWD recording at "H".
72	P96	O	—	H	REC-MUTE	Recording mute at "H", recording at "L".
73	P97	O	—	H/L	R/P HEAD SW	REC/PAUSE/MUTE at "H", others at "L".
74	PA0	O	—	H	BIAS	ON recording at "L", others at "H".
75	PA1	—	—	—		Not used.
76	AVCC	I	—	—	AVCC	+5V.
77	AN0	I	—	—	LEVEL R	R-ch level input signal.
78	AN1	I	—	—	LEVEL L	L-ch level input signal.
79	P02	I	—	—		Not used.
80	P03	I	—	—		Not used

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

CASSETTE DECK SECTION



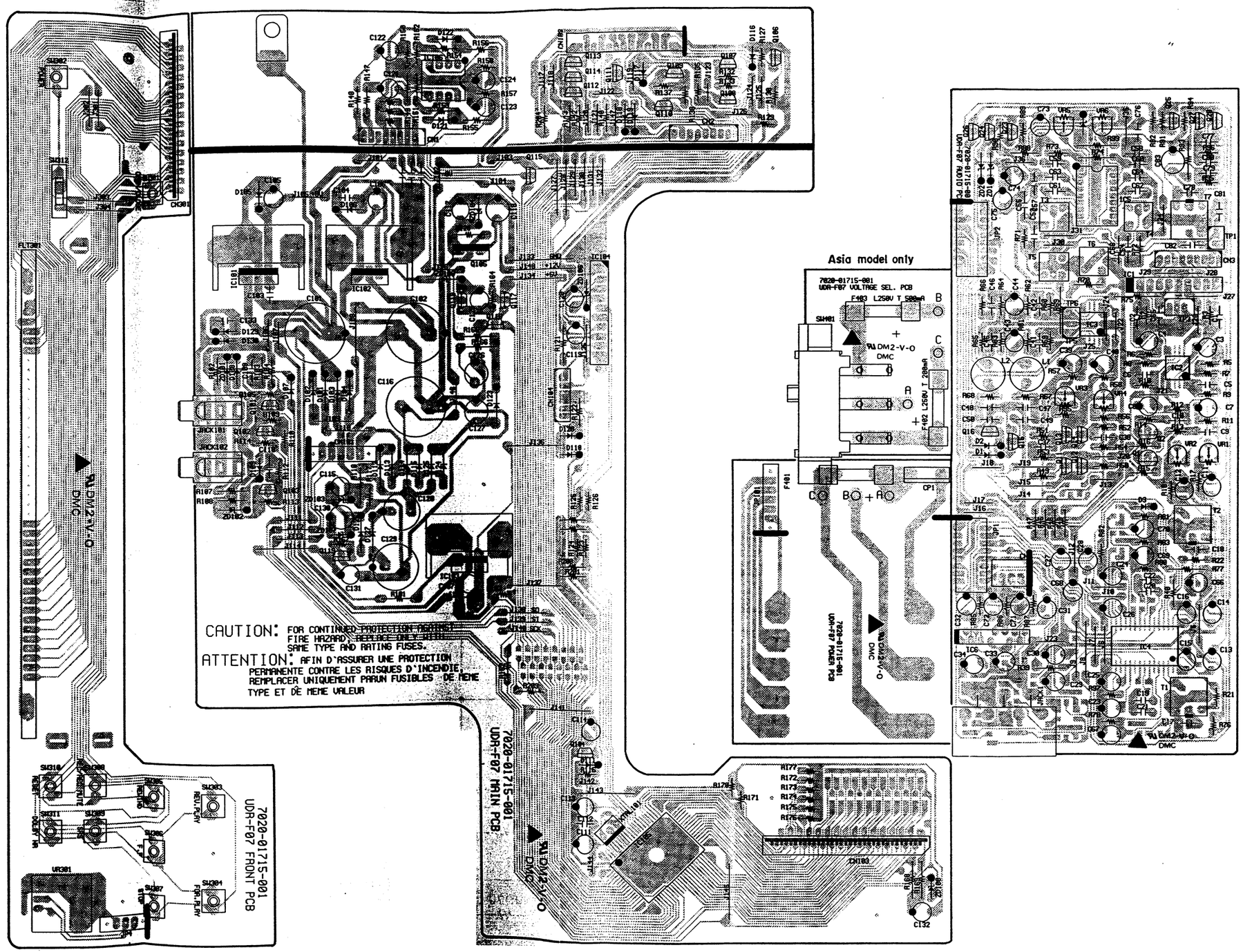
CASSETTE DECK SECTION

PRINTED WIRING BOARD

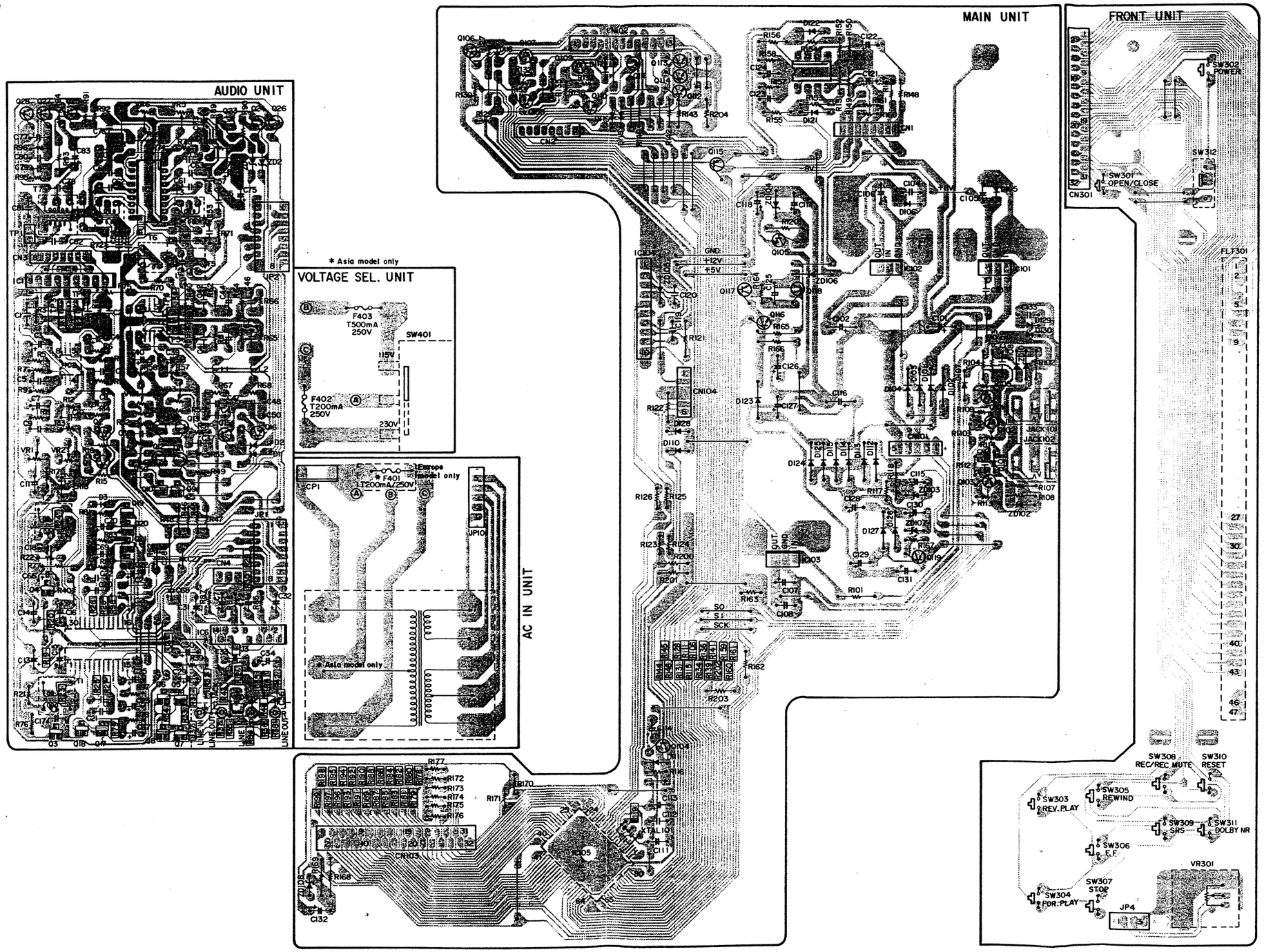
CASSETTE DECK ASS'Y

Component Side

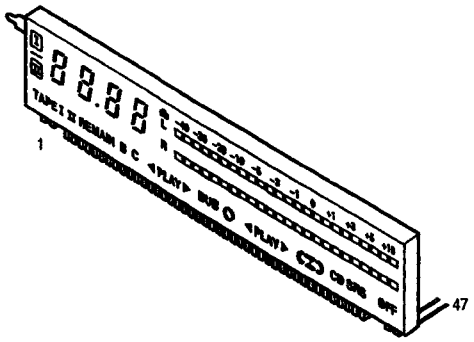
CASSETTE UNIT ASS'Y	
–1	Main Unit
–2	Front Unit
–3	Audio Unit
–4	Voltage Sel. SW Unit
–5	AC in Unit



Pattern Side



● Fluorescent Display Tube BJ239GK (FLT301)
(Part No. : 393 8014 000)



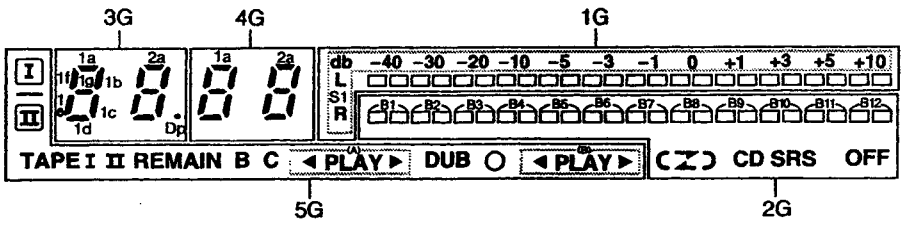
Pin Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Connection	F1	F1	NP	NP	1G	2G	3G	4G	5G	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Pin No.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Connection	NC	NC	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F2	F2

NOTE 1) Fl and F2 : ····· Filaments
2) NP : ····· No pin
3) NC : ····· No connection
4) 1G through 5G : ····· Grid

Grid Assignment



Anode Connection

	5G	4G	3G	2G	1G
P1	TAPE	1a	1a	B1	B1
P2	I	1b	1b	B2	B2
P3	II	1c	1c	B3	B3
P4	REMAIN	1d	1d	B4	B4
P5	B	1e	1e	B5	B5
P6	C	1f	1f	B6	B6
P7	◀	1g	1g	B7	B7
P8	PLAY	2a	2a	B8	B8
P9	▶	1b	1b	B9	B9
P10	DUB	2c	2c	B10	B10
P11	○	2d	2d	B11	B11
P12	◀	2e	2e	B12	B12
P13	PLAY	2f	2f	C	S1
P14	▶	2g	2g	Z	–
P15	I	–	Dp	D	–
P16	—	–	–	CD SRS	–
P17	II	–	–	OFF	–

P.W.B. UNIT ASS'Y PARTS LIST

CASSETTE DECK UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
IC001	263 0590 001	IC μPC1330HA	Logic IC
IC002,003	928 0035 809	IC NJM4565MD	Linear ope.amp
IC004	262 1267 903	IC CXA1331M	Dolby IC
IC005	263 0354 001	IC μPC1297CA	Dolby HX pro.
IC006	960 0014 109	IC M51132L	Linear equalizer
⚠ IC101	263 0502 002	IC NJM7805FA	Regulator 5V
⚠ IC102	263 0503 001	IC NJM7905FA	Regulator -5V
⚠ IC103	9LC P024 12	IC KIA7806F	Regulator 6V
IC104	9L2 3017 01W	IC BA6209N	Linear driver/volume
IC105	960 0013 304	IC HD6433723D52F	CPU microprocessor
IC106	960 0013 100	IC NJM4565DD	Linear ope.amp
Q001,002	274 0096 013	Transistor KTD1302	
Q003,004	269 0088 906	Transistor DTC114TK	Built in resistor
Q005～010	269 0104 903	Transistor DTC343TK	Built in resistor
Q011～016	269 0074 907	Transistor DTC114TS	Built in resistor
Q017	269 0055 900	Transistor DTA144EK	Built in resistor
Q018,019	269 0054 901	Transistor DTC144EK	Built in resistor
Q020,021	269 0055 900	Transistor DTA144EK	Built in resistor
Q022	269 0054 901	Transistor DTC144EK	Built in resistor
Q023,024	269 0020 906	Transistor DTC114ES	Built in resistor
Q025	960 0010 501	Transistor KTA1273(Y)	
Q026	269 0040 009	Transistor DTC144ES	Built in resistor
Q027,028	273 0178 022	Transistor 2SC1740S(R)	
Q101,102	271 0192 002	Transistor 2SA933S(S)	
Q103	273 0178 022	Transistor 2SC1740S(R)	
Q104	269 0040 009	Transistor DTC144ES	Built in resistor
Q105	960 0004 902	Transistor KTD2058(Y)	
Q106	269 0040 009	Transistor DTC144ES	Built in resistor
Q107	960 0010 501	Transistor KTA1273(Y)	
Q108	269 0020 906	Transistor DTC114ES	Built in resistor
Q109	960 0010 501	Transistor KTA1273(Y)	
Q110	269 0020 906	Transistor DTC114ES	Built in resistor
Q111	269 0093 904	Transistor DTA144ES	Built in resistor
Q112–114	269 0040 009	Transistor DTC144ES	Built in resistor
Q115	269 0093 904	Transistor DTA144ES	Built in resistor
Q116	269 0040 009	Transistor DTC144ES	Built in resistor
Q117	269 0093 904	Transistor DTA144ES	Built in resistor
Q118	269 0040 009	Transistor DTC144ES	Built in resistor
Q119	960 0010 501	Transistor KTA1273(Y)	
Q120–124	269 0062 906	Transistor DTC124ES	Built in resistor
D001–003	276 0401 002	Diode 1SS133	
⚠ D004	960 0014 206	Diode KDS226S	Bridge
⚠ D101–104	916 0053 008	Diode 1N4002A	Rectifier
D105–113	276 0401 002	Diode 1SS133	
D114,115	916 0053 008	Diode 1N4002A	
D116–119	276 0401 002	Diode 1SS133	
D121–123	276 0401 002	Diode 1SS133	
D124–127	916 0053 008	Diode 1N4002A	
D128–134	276 0401 002	Diode 1SS133	
ZD001,002	960 0014 303	Zener diode MTZ9.1B	9.1 V
ZD101,102	9H3 0000 408	Zener diode MTZ6.2B	6.2 V
ZD103	9H3 0000 251	Zener diode MTZ5.6B	5.6 V
ZD104	9H3 0000 409	Zener diode MTZ12B	12 V
ZD105	LA8 00-0 007	Zener diode MTZ7.5B	7.5 V
ZD106	960 0013 401	Zener diode MTZJ3.9B	3.9 V
ZD107	960 0014 905	Zener diode MTZJ20B	20 V
ZD108	9H3 0000 408	Zener diode MTZ6.2B	6.2 V
RESISTORS			
VR001,002	960 0039 113	Semi fixed resistor 47 kohm	C54447301511 P.B.GAIN
VR003,004	960 0039 100	Semi fixed resistor 22 kohm	C54422301511 LEVEL
VR005,006	960 0039 113	Semi fixed resistor 47 kohm	C54447301511BIAS
VR301	960 0011 704	Variable resistor 100 kohm	C45211140040
J001–004	247 1018 904	Carbon chip 0 ohm 1/8W	RM73B2B0R0K
J032,033	247 1018 904	Carbon chip 0 ohm 1/8W	RM73B2B0R0K
J037,038	247 1018 904	Carbon chip 0 ohm 1/8W	RM73B2B0R0K
J146	247 1018 904	Carbon chip 0 ohm 1/8W	RM73B2B0R0K
R001,002	247 0002 966	Carbon chip 10 ohm 1/10W	RM73B–100J
R003,004	241 2403 950	Carbon film 120 kohm 1/6W	RD14B2E124J(5)
R005,006	241 2396 960	Carbon film 150 ohm 1/6W	RD14B2E151J(5)
R007,008	241 2401 981	Carbon film 24 kohm 1/6W	RD14B2E243J(5)
R009,010	241 2405 026	Carbon film 620 kohm 1/6W	RD14B2E624J(5)
R011,012	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R013,014	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R015,016	241 2400 953	Carbon film 6.8 kohm 1/6W	RD14B2E682J(5)
R017,018	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R019,020	247 0009 956	Carbon chip 7.5 kohm 1/10W	RM73B–752J
R021,022	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R023,024	247 0009 943	Carbon chip 6.8 kohm 1/10W	RM73B–682J
R025,026	960 0039 401	Carbon chip 24 kohm 1/10W	RM73B–243F ±1%
R027,028	247 0006 988	Carbon chip 560 ohm 1/10W	RM73B–561J
R029,030	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B–473J
R031,032	247 0008 902	Carbon chip 1.8 kohm 1/10W	RM73B–182J
R033,034	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B–102J
R035,036	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B–103J
R037,038	247 0008 928	Carbon chip 2.2 kohm 1/10W	RM73B–222J
R039,040	241 2401 981	Carbon film 24 kohm 1/6W	RD14B2E243J(5)
R041,042	247 0011 999	Carbon chip 75 kohm 1/10W	RM73B–753J

CASSETTE DECK SECTION

Ref. No.	Part No.	Part Name	Remarks
R043,044	247 0006 962	Carbon chip 470 ohm 1/10W	RM73B--471J
R045,046	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R047,048	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R049,050	241 2402 977	Carbon film 56 kohm 1/6W	RD14B2E563J(5)
R051--054	241 2401 059	Carbon film 18 kohm 1/6W	RD14B2E183J(5)
R055,056	241 2399 938	Carbon film 2.2 kohm 1/6W	RD14B2E222J(5)
R057,058	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R059,060	241 2404 917	Carbon film 220 kohm 1/6W	RD14B2E224J(5)
R061,062	241 2402 003	Carbon film 30 kohm 1/6W	RD14B2E303J(5)
R063,064	241 2399 064	Carbon film 3 kohm 1/6W	RD14B2E302J(5)
R065,066	241 2398 939	Carbon film 820 ohm 1/6W	RD14B2E821J(5)
R067,068	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R069,070	241 2400 063	Carbon film 7.5 kohm 1/6W	RD14B2E752J(5)
R071,072	241 2403 073	Carbon film 150 kohm 1/6W	RD14B2E154J(5)
R073,074	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R075	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R076	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R077	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R078	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R079	247 0009 985	Carbon chip 10 kohm 1/10W	RM73B--103J
R080	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R081	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R082	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R083	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R084	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R085	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R086,087	241 2402 935	Carbon film 39 kohm 1/6W	RD14B2E393J(5)
R088	241 2398 997	Carbon film 1.5 kohm 1/6W	RD14B2E152J(5)
R089	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R090	241 2398 971	Carbon film 1.2 kohm 1/6W	RD14B2E122J(5)
R091	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R092	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R093	241 2394 069	Carbon film 22 ohm 1/4W	RD14B2E220J
R094	241 2395 945	Carbon film 47 ohm 1/6W	RD14B2E470J(5)
R095,096	241 2401 936	Carbon film 15 kohm 1/6W	RD14B2E153J(5)
R097	241 2401 994	Carbon film 27 kohm 1/6W	RD14B2E273J(5)
R098	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R099	241 2394 069	Carbon film 22 ohm 1/4W	RD14B2E220J
⚠ R101	244 2022 039	Fusible 22 ohm 1/4W(NB)	RD14B2E220JFR
R102	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R103	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R104	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R105	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R106	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R107	241 2397 901	Carbon film 220 ohm 1/6W	RD14B2E221J(5)
R108	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R109,110	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R111	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R112--114	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)

Ref No.	Part No.	Part Name	Remarks
R115	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R116	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R117	241 2401 059	Carbon film 18 kohm 1/6W	RD14B2E183J(5)
R118	241 2400 953	Carbon film 6.8 kohm 1/6W	RD14B2E682J(5)
R119	247 0014 967	Carbon chip 1 Mohm 1/10W	RM73B--105J
R120	241 2396 928	Carbon film 100 ohm 1/4W	RD14B2E101J
R121	241 2393 989	Carbon film 10 ohm 1/4W	RD14B2E100J
R122--124	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R125	241 2399 970	Carbon film 3.3 kohm 1/6W	RD14B2E332J(5)
R126	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R127	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R128	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R129	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R130	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R131	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R132,133	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R134	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R135	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R136	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R137,138	241 2397 943	Carbon film 330 ohm 1/6W	RD14B2E331J(5)
R139	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R140	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R141	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R142,143	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R144--146	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R147,148	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R149,150	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R151,152	241 2401 981	Carbon film 24 kohm 1/6W	RD14B2E243J(5)
R153,154	241 2401 978	Carbon film 22 kohm 1/6W	RD14B2E223J(5)
R155,156	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R157,158	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R159--161	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R162	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R163	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R164	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R165	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R166	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R167	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R168,169	241 2396 928	Carbon film 100 ohm 1/4W	RD14B2E101J
R170--177	241 2402 951	Carbon film 47 kohm 1/6W	RD14B2E473J(5)
R178--199	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J
R200,201	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R202	247 0007 945	Carbon chip 1 kohm 1/10W	RM73B--102J
R203,204	241 2403 934	Carbon film 100 kohm 1/6W	RD14B2E104J(5)
R206	241 2400 911	Carbon film 4.7 kohm 1/6W	RD14B2E472J(5)
R207,208	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R209	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R210	241 2400 995	Carbon film 10 kohm 1/6W	RD14B2E103J(5)
R211,212	247 0011 944	Carbon chip 47 kohm 1/10W	RM73B--473J

CASSETTE DECK SECTION

Ref. No.	Part No.	Part Name	Remarks
R213,214	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
R215	241 2396 928	Carbon film 100 ohm 1/6W	RD14B2E101J(5)
R216–218	241 2398 955	Carbon film 1 kohm 1/6W	RD14B2E102J(5)
CAPACITORS			
C001,002	253 1055 014	Ceramic cap. 560 pF/50V	CK45B1H561K
C003,004	254 4254 019	Electrolytic 22 µF/16V	CE04W1C220M
C005,006	255 1120 097	Film cap. 5600 pF/50V	CQ93M1H562J
C007,008	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C009,010	255 1121 041	Film cap. 0.015 µF/50V	CQ93M1H153J
C011–016	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C017,018	255 1120 055	Film cap. 2700 pF/50V	CQ93M1H272J
C019–022	255 1120 042	Film cap. 2200 pF/50V	CQ93M1H222J
C023,024	254 4260 032	Electrolytic 0.47 µF/50V	CE04W1HR47M
C025,026	254 4260 029	Electrolytic 0.33 µF/50V	CE04W1HR33M
C027–030	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
C031–034	254 4260 074	Electrolytic 4.7 µF/50V	CE04W1H4R7M
C035,036	257 0016 904	Ceramic chip. 100 pF/50V	CC73CH1H101J(Temp.)
C039,040	254 4260 074	Electrolytic 4.7 µF/50V	CE04W1H4R7M
C041,042	255 1122 037	Film cap. 0.082 µF/50V	CQ93M1H823J
C043,044	254 4252 024	Electrolytic 47 µF/10V	CE04W1A470M
C045,046	255 1134 012	Film cap. 5600 pF/50V	CQ92M1H562J
C047,048	255 1135 053	Film cap. 3900 pF/50V	CQ92M1H392J
C049,050	255 1134 009	Film cap. 2200 pF/50V	CQ92M1H222J
C053,054	253 1055 069	Ceramic cap. 100 pF/50V	CK45B1H101K
C055,056	960 9001 401	Film cap. 300 pF/100V	CQ93P2A301J
C057,058	253 1055 027	Ceramic cap. 820 pF/50V	CK45B1H821K
C059,060	255 1121 025	Film cap. 0.01 µF/50V	CQ93M1H103J
C061,062	255 1121 083	Film cap. 0.033 µF/50V	CQ93M1H333J
C063,064	255 1121 067	Film cap. 0.022 µF/50V	CQ93M1H223J
C065	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C066	254 4254 019	Electrolytic 22 µF/16V	CE04W1C220M
C067	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C068,069	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C070	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
C071	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C072	254 4254 019	Electrolytic 22 µF/16V	CE04W1C220M
C073	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C074	254 4254 019	Electrolytic 22 µF/16V	CE04W1C220M
C075	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C076	253 1026 001	Ceramic cap. 0.047 µF/50V	CK45F1H473Z
C077	255 1120 042	Film cap. 2200 pF/50V	CQ93M1H222J
C078	255 1121 041	Film cap. 0.015 µF/50V	CQ93M1H153J
C079,080	255 1120 068	Film cap. 3300 pF/50V	CQ93M1H332J
C081	255 4079 925	Film cap. 8200 pF/100V	CQ93P2A822J
C082	253 4342 012	Ceramic cap. 10 pF/50V	CC45SL1H100J
C083	254 4254 051	Electrolytic 220 µF/16V	CE04W1C221M

Ref No.	Part No.	Part Name	Remarks
C101,102	254 4256 091	Electrolytic 2200 µF/25V	CE04W1E222M
C103,104	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C105–107	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C108	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C109,110	253 1004 007	Ceramic cap. 1000 pF/50V	CK45B1H102K
C111	254 4252 037	Electrolytic 100 µF/10V	CE04W1A101M
C112	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C113	254 4260 003	Electrolytic 0.1 µF/50V	CE04W1H0R1M
C114	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C115	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C116	254 4256 091	Electrolytic 2200 µF/25V	CE04W1E222M
C117	254 4260 061	Electrolytic 3.3 µF/50V	CE04W1H3R3M
C118	254 4254 048	Electrolytic 100 µF/16V	CE04W1C101M
C119,120	253 1027 000	Ceramic cap. 0.1 µF/50V	CK45F1H104Z
C121,122	254 4260 058	Electrolytic 2.2 µF/50V	CE04W1H2R2M
C123,124	254 4260 032	Electrolytic 0.47 µF/50V	CE04W1HR47M
C125	254 4260 906	Electrolytic 0.1 µF/50V	CE04W1H0R1M
C126,127	254 4256 046	Electrolytic 100 µF/25V	CE04W1E101M
C128	254 4256 062	Electrolytic 330 µF/25V	CE04W1E331M
C129	254 4261 044	Electrolytic 330 µF/50V	CE04W1H331M
C130	254 4258 044	Electrolytic 47 µF/35V	CE04W1V470M
C131	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C132	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C133	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C134	254 4260 045	Electrolytic 1 µF/50V	CE04W1H010M
C135	254 4254 035	Electrolytic 47 µF/16V	CE04W1C470M
C136	254 4256 004	Electrolytic 10 µF/25V	CE04W1E100M
C137	253 1025 002	Ceramic cap. 0.022 µF/50V	CK45F1H223Z
C138,139	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K
C140,141	257 0009 966	Ceramic chip. 4700 pF/50V	CK73B1H472K
C142	253 1010 004	Ceramic cap. 0.01 µF/50V	CK45B1H103K

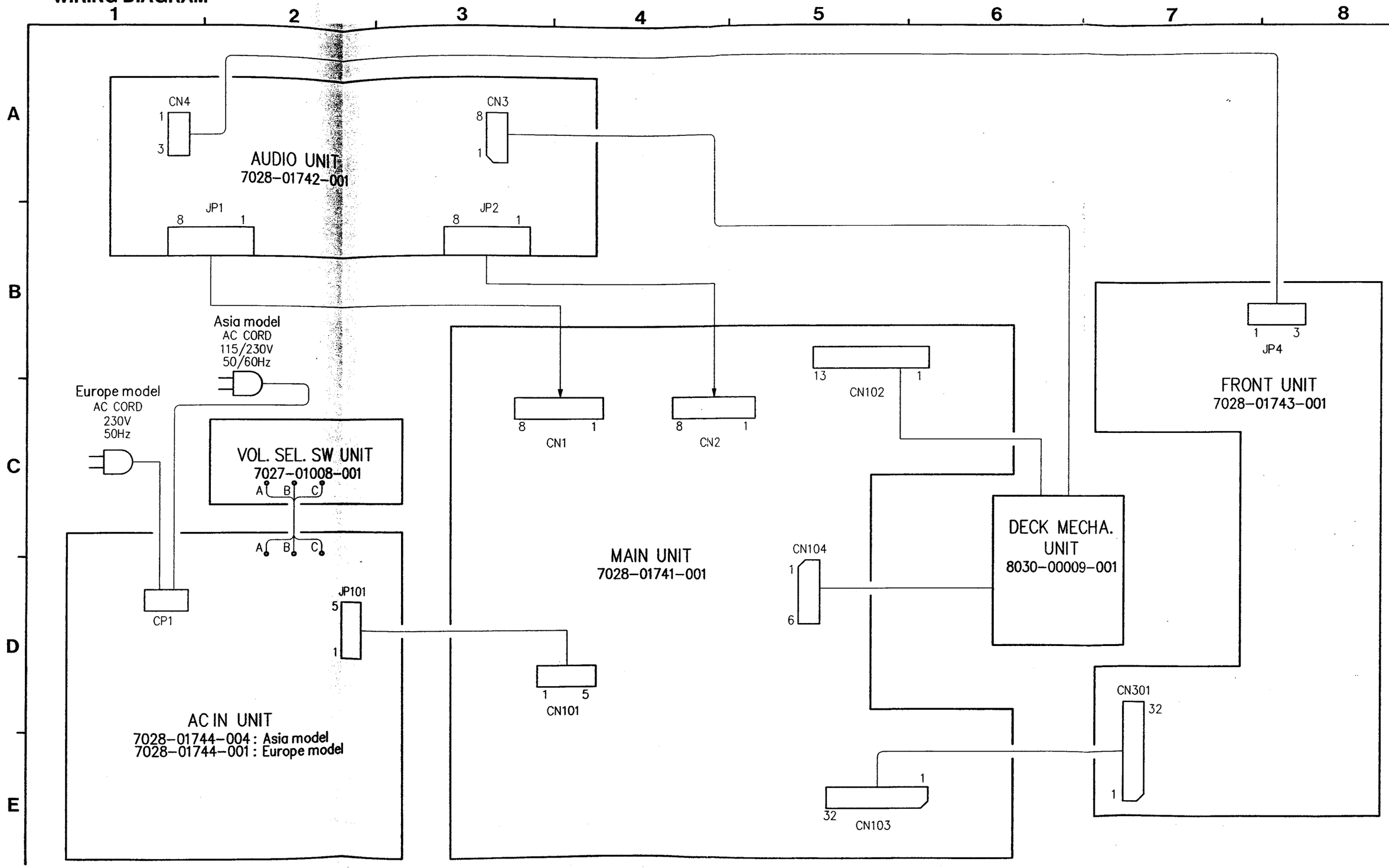
OTHER PARTS				Q'ty
	—	(P.W.board)	—	(1)
JACK001	960 0014 002	4 P pin jack	G60204004504	1
JACK101,102	960 0004 407	Mini jack ϕ3.5	G40103110201	2
L001,002	960 0013 618	Inductor 18 mH	D33018000000	2
SW301–311	960 0002 409	Tact switch	G18000027000	11
SW312	960 0011 801	Slide switch	G06031301201	1
⚠ SW401	960 0037 403	Slide switch (Voltage select)	G06001000001 Asia model only	1
T001,002	960 0013 906	MPX filter	E40125366001	2
T003,004	960 0013 702	Osc. transformer	D94052400000	2

Ref. No.	Part No.	Part Name	Remarks	
T005,006	960 0013 605	Trap coil	D30212652240	2
T007	960 0013 809	Osc. bias transformer	E08051690000	1
FLT301	393 8014 000	FLD tube BJ-239GK	K53000028001	1
⚠ F401	[illegible]	Fuse T0.2A 250V	G65020125104 Europe model	1
⚠ F402	[illegible]	Fuse T0.2A 250V	G65020125104 Asia model	1
⚠ F403	[illegible]	Fuse T0.5A 250V	G65050125104 Asia model	1
	960 0005 804	Fuse holder	for F401 Europe model	2
	960 0005 804	Fuse holder	for F402.403 Asia model	4
XTAL101	399 0107 007	Ceramic resonator	CST4.19MGW	1
CN001,002	—	Connector wafer 8 P	L10120080001	2
CN003	—	Connector wafer 8 P	L10153014081	1
CN004	—	Connector wafer 3 P	L13206031001	1
CN101	—	Cable holder 5 P	L11251052050	1
CN102	—	Wire trap 13 P	L14152147131	1
CN103	960 0039 207	Flat cable 32 P Holder	L13152044320	1
CN103	960 0013 207	Flat cable 32 P Connector	L13152045320	1
CN104	—	Connector wafer 6 P	L10153014061	1
CN301	960 0011 908	32 P flat cable	L30115132001	1
⚠ CP001	—	Connector wafer 2 P	L10903960201	1
JP001,002	—	Connector wafer 8 P	L10120080002	2
JP004	—	Cable holder 3 P	L11251052030	1
JP004	—	Flat cable 260 mm Black	L32026103260	1
JP101	—	Cable holder 5 P	L11251052050	1
JP101	—	Flat cable 200 mm Black	L32020105241	1
TP001	—	Connector wafer 2 P	L10153014021	1
TP003~006	—	Connector wafer 3 P	L10153014031	2
	—	Heat sink	for IC101~103	3
	960 0036 909	Terminal	379000012000	1
	960 0012 004	FLD support	407002002101	1
J005~031	—	Jumper wire	L40200002002	27
J033~036	—	Jumper wire	L40200002002	4
J101~145	—	Jumper wire	L40200002002	45
J147,148	—	Jumper wire	L40200002002	2
J301~304	—	Jumper wire	L40200002002	4

Ref No.	Part No.	Part Name	Remarks	
	960 9000 266	Screw 3 x 6 tite/PH	B010HV6061P2	4
W1	—	1P Connector wire Black L=100 mm	L00010122001 Asia model only	1
W2	—	1P Connector wire Yellow L=100 mm	L00010122401 Asia model only	1
W3	—	1P Connector wire Blue L=120 mm	L00010122601 Asia model only	1

CASSETTE DECK SECTION

WIRING DIAGRAM

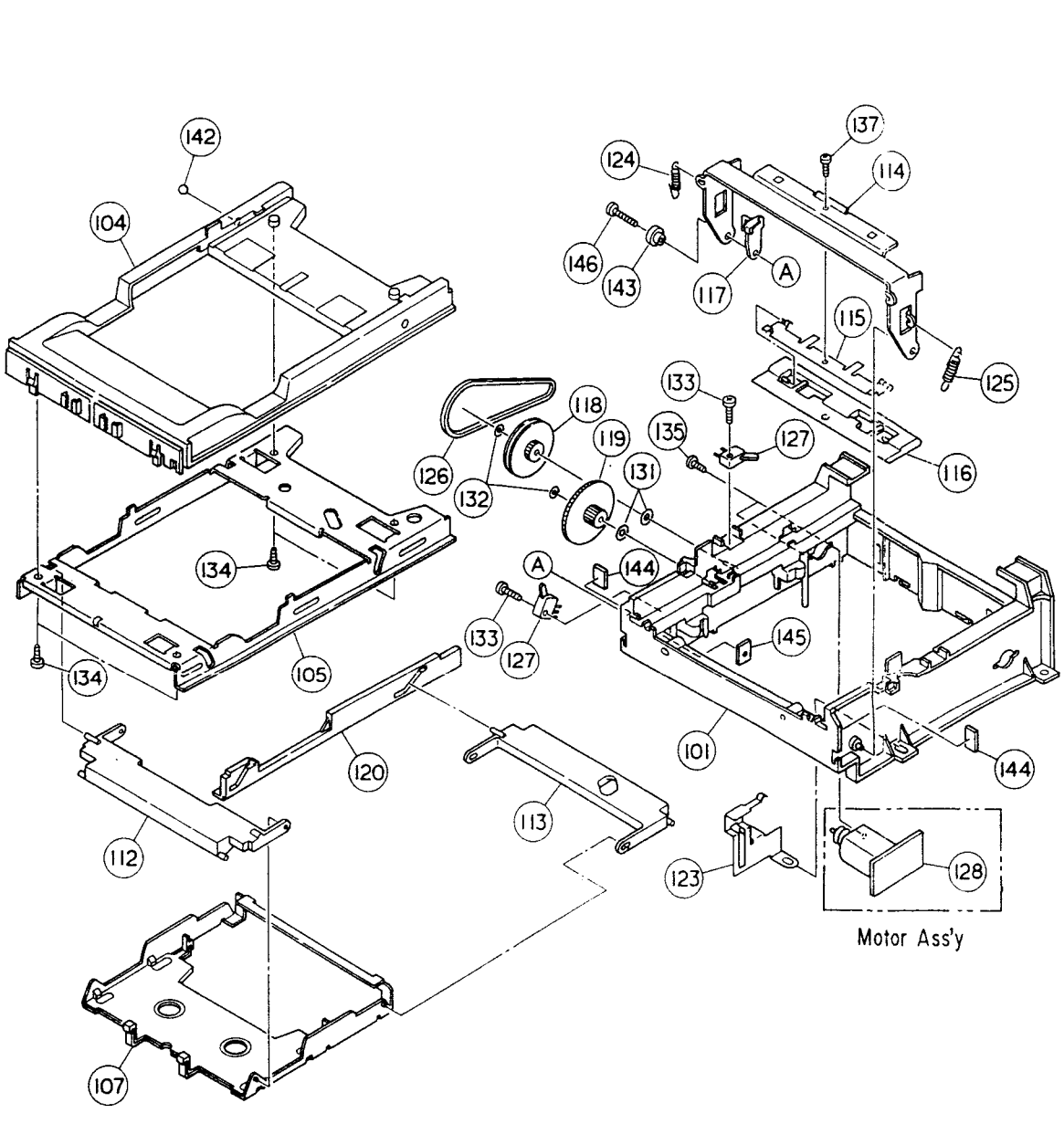


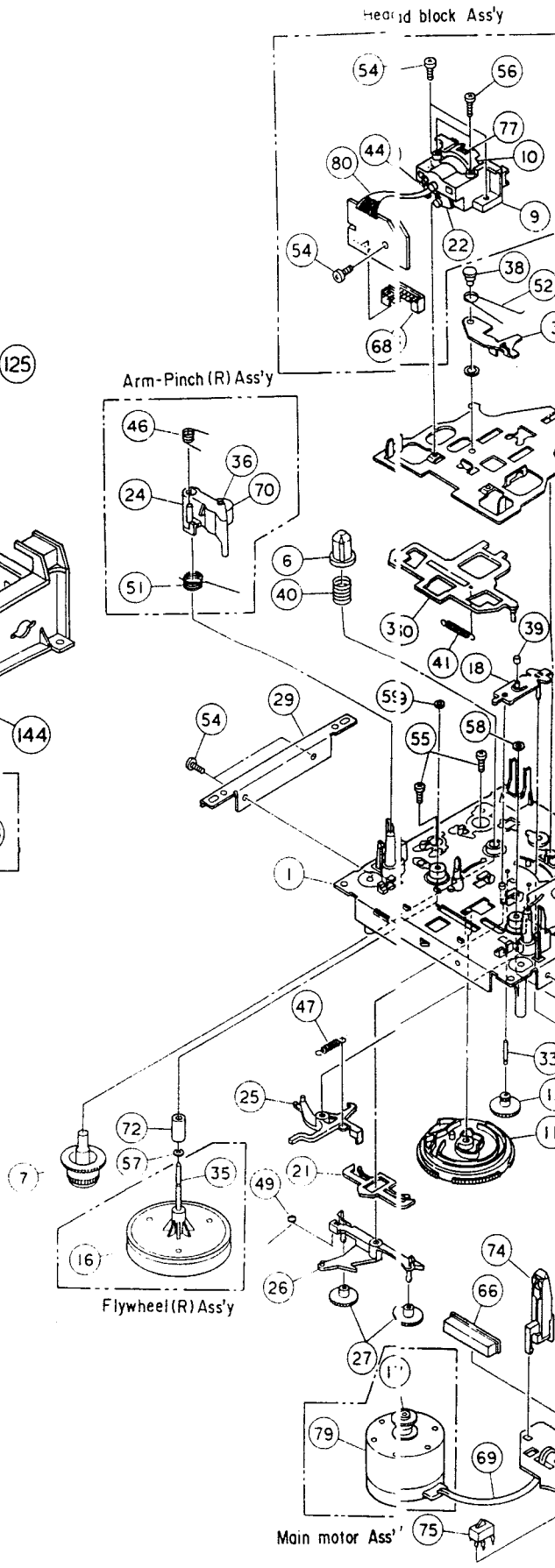
CASSETTE MECHANISM EXPLODED VIEW

1 2 3 4 5

LOADER SECTION

MECHA. SECTION



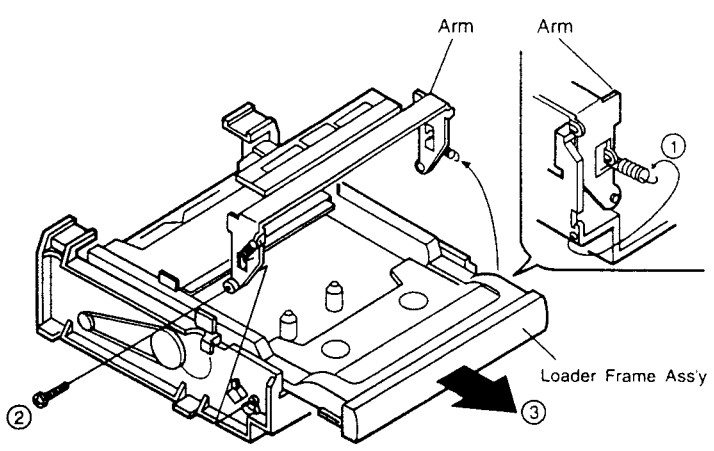


DISASSEMBLY PROCEDURES

(Assembly is performed in the reverse order.)

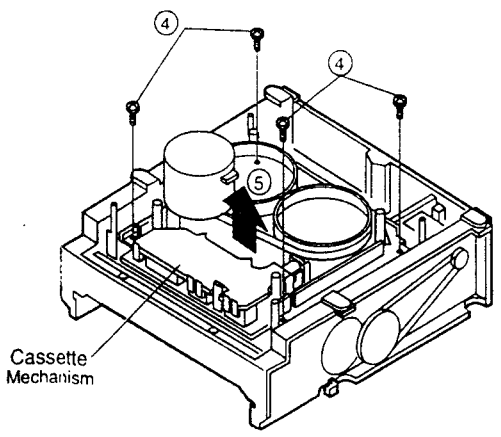
1. Loader Frame Ass'y

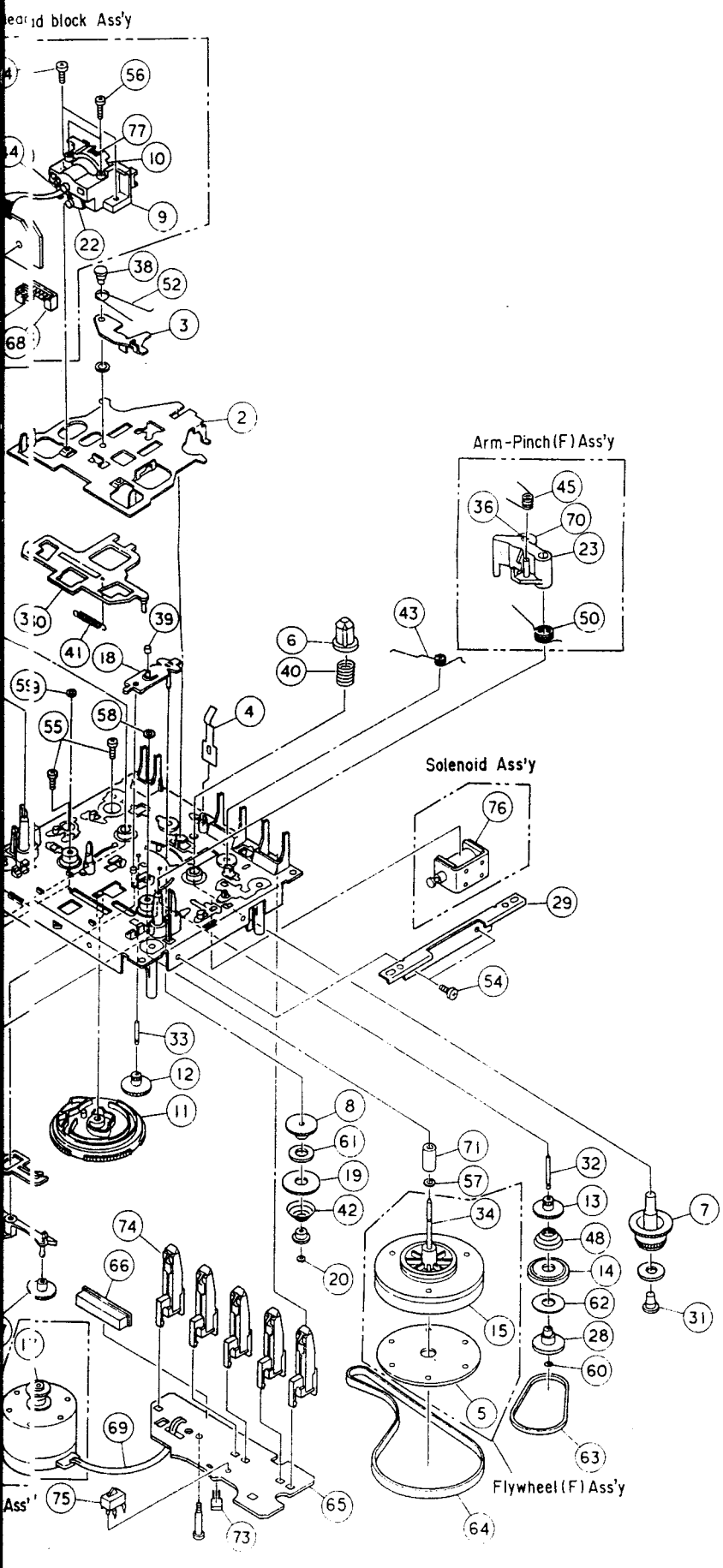
① Remove the Arm spring.
② Remove a screw fastening the Arm on the Loader Frame Ass'y.
③ Pull out the Loarder Frame Ass'y as shown in figure.



2. Cassette Mechanism

④ Remove 4 screws fixing the Cassette Mechanism.
⑤ Detach the Cassette Mechanism in the arrow direction.





PARTS LIST OF CASSETTE MECHANISM UNIT (Part No.:960 0014 701)

LOADER SECTION

Ref. No.	Part No.	Part Name	Remarks	Q'ty
101	960 0017 009	Frame Ass'y	A1A001A	1
102	—	—		
103	—	—		
104	960 0017 106	Tray	A1G002A	1
105	960 0017 203	Chassis	A1P001A	1
106	—	—		
107	960 0017 300	Holder Ass'y	A1A002A	1
108	—	—		
109	—	—		
110	—	—		
111	—	—		
112	960 0017 407	Arm A	A1G004A	1
113	960 0017 504	Arm C	A1G005A	1
114	960 0017 601	Arm	A1P003A	1
115	960 0017 708	Retainer	A1P004A	1
116	960 0017 805	Plate	A1G006A	1
117	960 0017 902	Arm	A1G007A	1
118	960 0018 008	Pulley	A1G008A	1
119	960 0018 105	Gear	A1G009A	1
120	960 0018 202	Gear rack	A1G010A	1
121	—	—		
122	—	—		
123	960 0018 309	Plate	A1P005A	1
124	960 0018 406	Spring A	A1S001A	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
125	960 0018 503	Spring B	A1S002B	1
126	960 0018 600	Belt	A1G011A	1
127	960 0018 707	Switch MSS-8B	S01W181	2
128	960 0018 804	Motor P.W.board Ass'y	M01T147 w/ conn. pin	1
129	—	—		
130	—	—		
131	960 0018 901	Washer 2.1x4x0.5	P21W405	2
132	960 0018 914	Wasaher 2.1x4x0.5C	P21C405	2
133	960 0018 927	B tite screw 2x8 Black	N20B008	2
134	960 0018 930	B tite screw 2.6x5 Black	N26B005	4
135	960 0018 943	Screw 2x4	M20N004	1
136	—	—		
137	960 0018 956	Screw 1.4x2 Black	S14N002	1
138	—	—		
139	—	—		
140	—	—		
141	—	—		
142	960 0019 007	Steel ball ϕ 5	A1H006A	1
143	960 0019 104	Bush	A1H002A	1
144	960 0019 201	Buffer	A1G015A	2
145	960 0018 969	Nut	A1P007A	1
146	960 0018 972	Screw 1.7x10	S17N010	1
147				

PARTS LIST OF CASSETTE MECHANISM UNIT

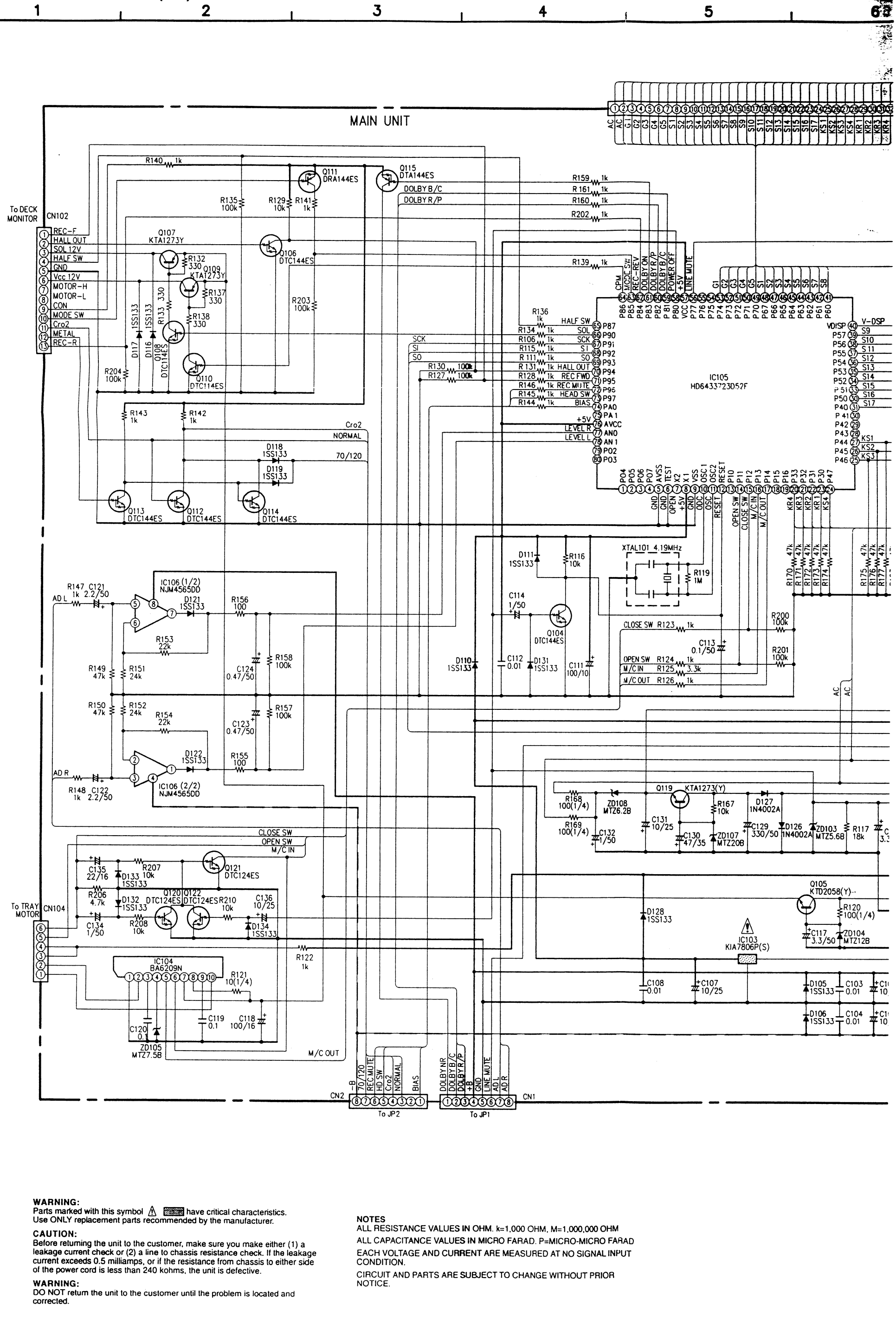
MECH. SECTION

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	—	Main chassis	11112-00500BA	1
2	960 0020 106	Head base	11105-00310BA	1
3	960 0020 203	Sub. head base	11105-00420BA	1
4	960 0020 300	Spring plate	51299-12316XA	1
5	960 0020 407	Flywheel plate F	11143-00800BA	1
6	960 0020 504	Reel chip	11110-00120AA	2
7	960 0020 601	Reel base	11105-00330AA	2
8	960 0020 708	Bush P	11107-00220AA	1
9	960 0020 805	Head bracket	11106-00650AA	1
10	960 0020 902	Head gear	11128-00740AA	1
11	960 0021 008	Cam gear	11128-00760AA	1
12	960 0021 105	Idler gear	11128-00780AA	1
13	960 0021 202	Bush C	11107-00230AA	1
14	960 0021 309	Pulley C	11145-00560AA	1
15	960 0021 406	Flywheel pulley F	11145-00570AA	1
16	960 0021 503	Flywheel pulley R	11145-00580AA	1
17	960 0021 600	Motor pulley	11145-00590AA	1
18	960 0021 707	Arm P	11102-01020AA	1
19	960 0021 804	Gear P	11128-00730AA	1
20	960 0021 901	Cap P	11117-00090AA	1
21	960 0022 007	Brake lever	11102-01030AA	1
22	960 0022 104	DIR gear	11128-00750AA	1
23	960 0022 201	Pinch arm F	11102-01040AA	1
24	960 0022 308	Pinch arm R	11102-01050AA	1
25	960 0022 405	Cam lock arm	11102-01060AA	1
26	960 0022 502	RF arm	11102-01070AA	1
27	960 0022 609	RF gear	11128-00770AA	2
28	960 0022 706	Cap C	11117-00100AA	1
29	960 0022 803	Side bracket	11106-00970AA	2
30	960 0022 900	AC lever	11134-01870AA	1
31	960 0023 006	Magnet cap	11117-00120AA	1
32	960 0023 103	RF shaft	11150-02260EA	1
33	960 0023 200	Idler shaft	11150-02270EA	1
34	960 0023 307	Capstan shaft F	11150-02290EA	1
35	960 0023 404	Capstan shaft R	11150-02300EA	1
36	960 0023 501	Pinch shaft	11150-00130EA	2
37	—	—		
38	960 0023 705	Sub. shaft	11150-02810EA	1
39	960 0023 802	Roller P	11147-01780EA	1
40	960 0023 909	B/T spring	51203-03096XA	2
41	960 0023 912	AC lever spring	51211-01026XA	1
42	960 0023 925	Spring P	51203-05106XB	1
43	960 0023 938	Base head spring	51263-08046XA	1
44	960 0023 941	DIR spring	51267-03036XA	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
45	960 0023 954	Pinch spring F	51263-08056XA	1
46	960 0023 967	Pinch spring R	51263-08056BX	1
47	960 0023 970	Cam lock spring	51211-03036XB	1
48	960 0023 983	Spring C	51203-06146XA	1
49	960 0023 996	RF arm spring	51264-03036XA	1
50	960 0024 005	Pinch return spring F	51263-03046XA	1
51	960 0024 018	Pinch return spring R	51263-03046XB	1
52	960 0024 021	Sub. spring	51272-10073BA	1
53	960 0024 102	Tapping screw 1.6x8	50032-16082EA	1
54	960 0024 115	Tapping screw 2x4	50262-20059EC	7
55	960 0024 128	Pan screw 2.6x5	50032-26051EA	2
56	960 0024 131	Azimuth screw 2x5		2
57	960 0024 209	Washer	51000-02302BA	1
58	960 0024 212	Washer	51010-01805AA	1
59	960 0024 225	Washer	51010-01605AA	1
60	960 0024 238	Washer	51010-00902**	1
61	960 0024 306	Felt P	51000-02302BA	1
62	960 0024 319	Felt C	51010-01805AA	1
63	960 0024 403	Sub. belt	51428-03411BB	1
64	960 0024 500	Main belt	51428-06905AA	1
65	960 0024 607	Control P.W.board	51000-02302BA	1
66	960 0024 704	Rec./Playback connector	70219-30003LA	1
67	—	—		
68	960 0024 720	Head connector	70219-30004EA	1
69	960 0024 801	Motor wire	70620-01602WA	1
70	960 0024 908	Pinch roller	11147-00160FA	2
71	960 0025 004	Metal bearing A	51601-02204AA	1
72	960 0025 017	Metal bearing B	51601-02011AA	1
73	960 0025 101	Hall IC	69801-99001ZA	1
74	960 0025 208	Detector switch	70016-04001AA	5
75	960 0025 305	Mode switch	70066-02001AA	1
76	960 0025 402	Solenoid	79840-00005AA	1
77	960 0025 509	Rec./Playback head	71486-94044ZA	1
78	—	—		
79	960 0025 703	Motor	70620-01602WA	2
80	—	Head wire	70620-01501CA	1
★ 81	—	Head wire	70620-01501CA	1
★ 82	—	Head wire	70620-01501CA	1
★ 83	—	Head wire	70620-01501CA	2
★ 84	—	Head wire	70620-01501CA	1
★ 85	—	Head wire	70620-01501CA	1
★ 86	—	Head wire	70620-01501CA	1
87				

CASSETTE DECK SECTION

SCHEMATIC DIAGRAM (1/2)



WARNING:
Parts marked with this symbol ⚠ ▒▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

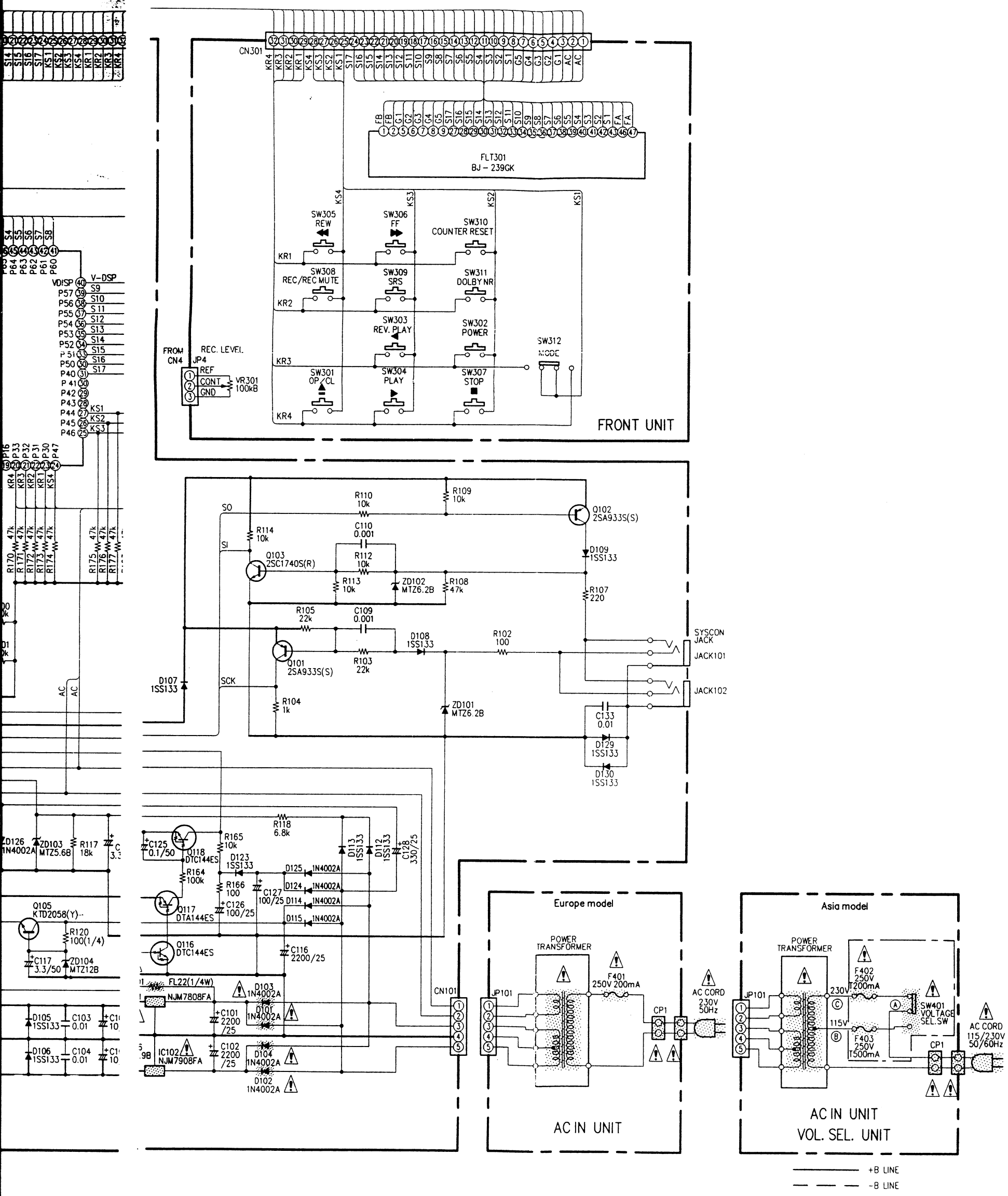
WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.

NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM

ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD

EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.


CN301
FLT301
BJ – 239GK
SW305 REW
SW306 FF
SW310 COUNTER RESET
SW308 REC/REC MUTE
SW309 SRS
SW311 DOLBY NR
SW303 REV. PLAY
SW302 POWER
SW312 MODE
SW301 OP/CL
SW304 PLAY
SW307 STOP
KS1
KS2
KS3
KS4
KR1
KR2
KR3
KR4
FROM CN4
JP4
REC. LEVEL
REF
CONT
GND
VR301 100kB
FRONT UNIT
V-DSP
VDISP
P57
P56
P55
P54
P53
P52
P51
P50
P40
P41
P42
P43
P44
P45
P46
R170
R171
R172
R173
R174
R175
R176
R177
47k
R110 10k
R109 10k
Q102 2SA933S(S)
C110 0.001
R114 10k
Q103 2SC1740S(R)
R112 10k
R113 10k
ZD102 MTZ6.2B
R108 47k
D109 1SS133
R107 220
R105 22k
C109 0.001
D108 1SS133
R102 100
Q101 2SA933S(S)
R103 22k
D107 1SS133
R104 1k
ZD101 MTZ6.2B
SYSCON JACK
JACK101
JACK102
C133 0.01
D129 1SS133
D130 1SS133
SO
SI
SCK
AC
R118 6.8k
R165 10k
C125 0.1/50
Q118 DTC144ES
D123 1SS133
R164 100k
R166 100
C127 100/25
C126 100/25
Q117 DTA144ES
Q116 DTC144ES
C116 2200/25
D125 1N4002A
D124 1N4002A
D114 1N4002A
D115 1N4002A
D113 1SS133
D112 1SS133
C128 330/25
FL22(1/4W)
NJM7808FA
IC102 NJM7908FA
C101 2200/25
C102 2200/25
D103 1N4002A
D101 1N4002A
D104 1N4002A
D102 1N4002A
CN101
Q105 KTD2058(Y)
R120 100(1/4)
C117 3.3/50
ZD104 MTZ12B
ZD126 1N4002A
ZD103 MTZ5.6B
R117 18k
D105 1SS133
C103 0.01
D106 1SS133
C104 0.01
Europe model
POWER TRANSFORMER
F401 250V 200mA
JP101
CP1
AC CORD 230V 50Hz
AC IN UNIT
Asia model
F402 250V T200mA
F403 250V T500mA
SW401 VOLTAGE SEL.SW
AC CORD 115/230V 50/60Hz
AC IN UNIT
VOL. SEL. UNIT
+B LINE
-B LINE

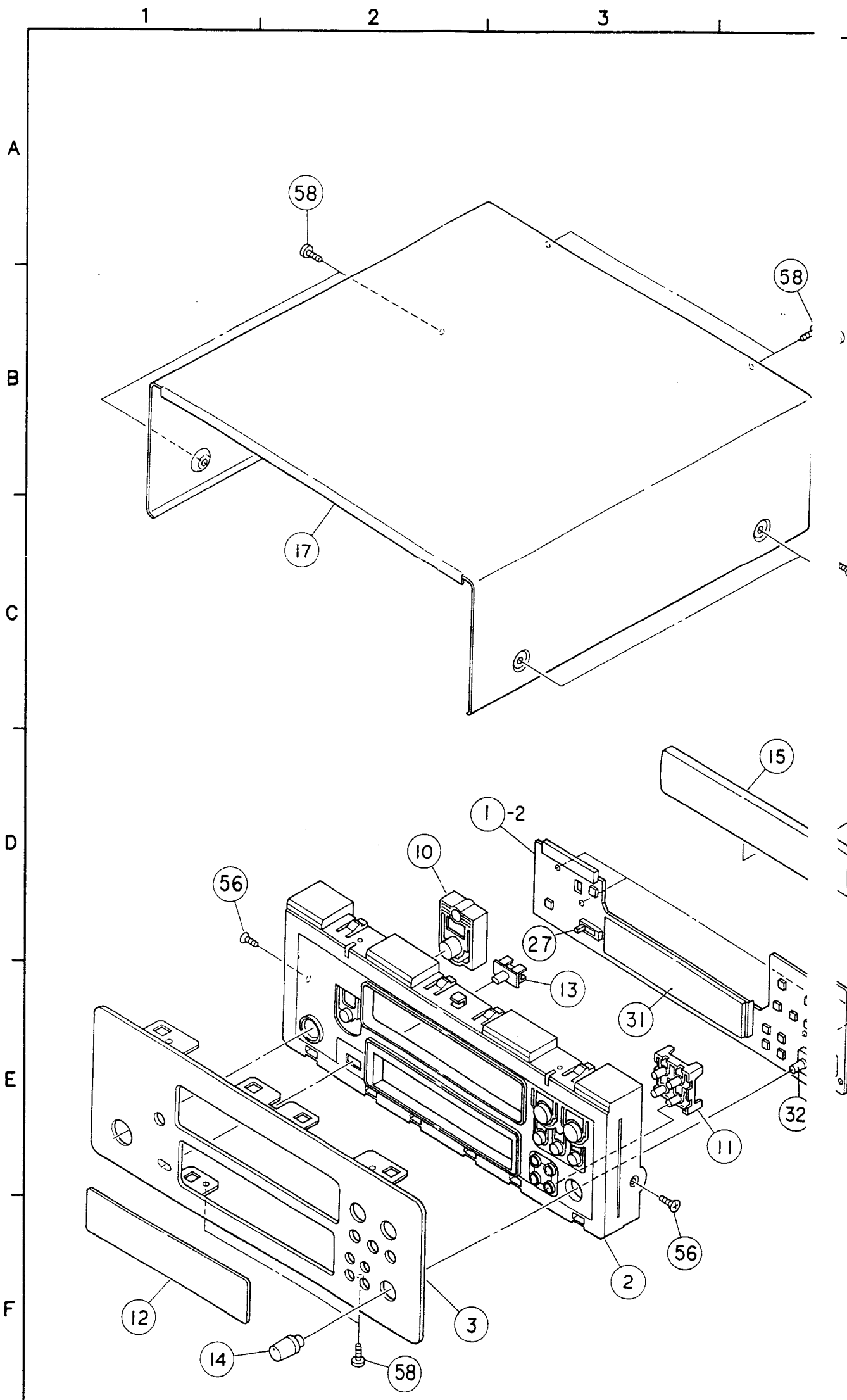
CASSETTE DECK SECTION

PARTS LIST OF EXPLODED VIEW

CASSETTE DECK SECTION (UDR-F07)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	—	Cassette deck		1s
		P.W.B. unit Ass'y		
1-1	(960 0013 003)	Main unit	702801741001	(1)
1-2	(960 0011 607)	Front unit	702801743001	(1)
1-3	(960 0013 508)	Audio unit	702801742001	(1)
1-4	—	Voltage sel. unit	702701008001	(1)
			Asia model only	
1-5	(960 0039 003)	AC in unit	702801744001	(1)
			Europe model	
1-5	(960 0039 016)	AC in unit	702801744004	(1)
			Asia model	
◉ 2	960 0011 306	Inner panel	321702002101	1
◉ 3	960 0011 209	Front panel	306702006801	1
◉ 4	960 0036 404	Rear panel	320702008601	1
			Europe model	
◉ 4	960 0036 006	Rear panel	320702008602	1
			Asia model	
◉ 5	960 0014 604	Cassette loader	803000009001	1
◉ 6	960 0014 701	Cassette mechanism	815021640001	1
		(ADR2164TR)		
◉ 7	960 0012 208	Chassis	320002009601	1
8	—	—		
9	—	—		
10	960 0001 303	Power button	508702004101	1
11	960 0011 403	Rec. button	508702005101	1
12	960 0007 608	Display window	507702004102	1
13	960 0011 500	Selector button	508702006101	1
14	960 0003 709	Knob (Rec.level)	508702002101	1
15	960 0012 606	Tray cover	431702009101	1
16	960 0012 305	Mecha. holder	407002001101	4
◉ 17	960 0006 308	Top cover	300002009601	1
18	960 0003 204	Foot	400000060101	2
19	960 0003 408	Foot hotstamp	400700006101	2
20	960 0012 402	Mecha. cover	431002019601	1
◉ 21	960 0003 301	P.W.B. holder	407000160101	3
22	960 0003 505	Foot cushion	405002007501	4
⚠ 23	960 0039 501	Power transformer	820067001001	1
			Europe model	
⚠ 23	960 0039 502	Power transformer	820067001004	1
			Asia model	
24	—	Heat sink	212000066000	3
⚠ 25	960 0033 502	Cord bush	439000018003	1
⚠ 26	960 0032 301	AC cord	L0610041001	1
27	960 0011 801	Slide switch	SW312	1
			G06031301201	
28	960 0014 002	4 P pin jack	JACK001	1
			G60204004504	
29	960 0004 407	Mini jack φ3.5	JACK101,102	2
			G40103110201	
⚠ ★30	960 0033 500	Fuse T0.2A/250V	F401 G6502012504	1
			Europe model	
⚠ ★30	960 0033 600	Fuse T0.2A/250V	F402 G6502012504	1
			Asia model	
31	393 8014 000	FLD tube BJ-239GK	FLT301 K53000028001	1
32	960 0011 704	Variable resistor	VR301 C45211140040	1
		100 kohm		
★33	960 0011 908	32 P FP cable	CN301 L30115132001	1
◉ ★34	960 0012 004	FLD support	407002002101	1
⚠ ★35	960 0031 403	Slide switch	SW401 G6000010001	1
		(VOLTAGE SEL)	Asia model only	
⚠ ★35	960 0033 700	Fuse T1.25A/250V	F403 G6502012504	1
			Asia model only	
★37	960 0012 509	Cushion	405002010501	1
★38	960 0012 512	Cushion	405002011501	1
★39	—	Pre-set label 2	550702001002	1
			U.K. model only	
★39	515 0702 017	Pre-set label	550702001001	1
			Asia model only	
SCREWS (including washers)				
51	960 9000 114	Screw 3 x 8 B tite YL/BL	B020HF6081B1	14
52	960 9000 240	Screw 3 x 10 /BH	B010HV6101B5	4
53	960 9000 156	Screw 3 x 17 B tite/BH	B020HF6171B1	3
54	—	—		
55	960 9000 266	Screw 3 x 6 /PH	B010HV6061P2	4
56	960 9000 130	Screw 3 x 8 /FH	B020HF6083F1	2
57	960 9000 169	Screw 4 x 8 B tite YL/BH	B020HF8081B2	4
58	960 9000 208	Screw 3 x 8 B tite BK/BH	B020HF6083B1	22
			Europe model	
58	960 9000 208	Screw 3 x 8 B tite BK/BH	B020HF6083B1	24
			Asia model	
59				

EXPLODED VIEW

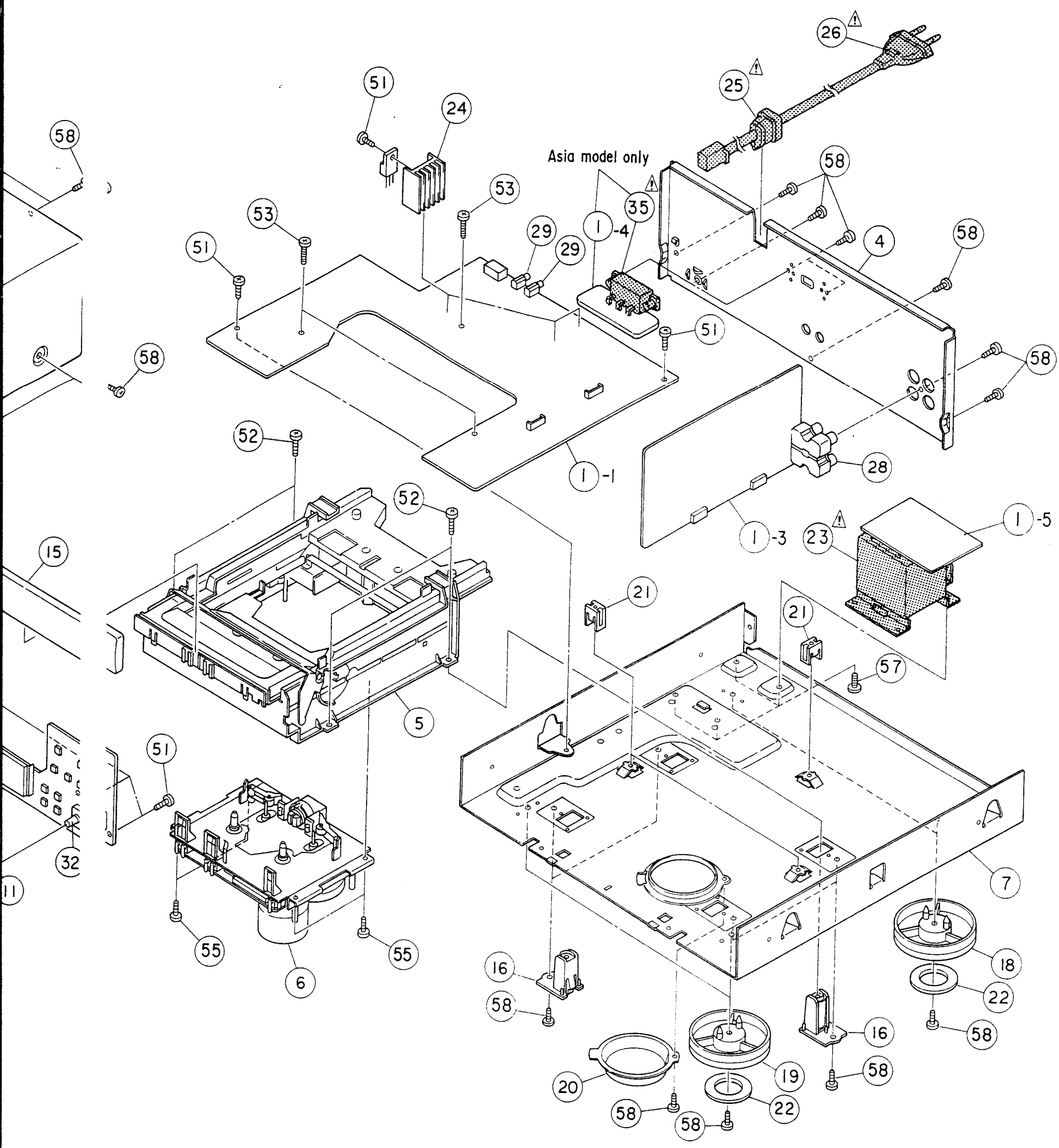


NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplyir some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for thos

WARNING:

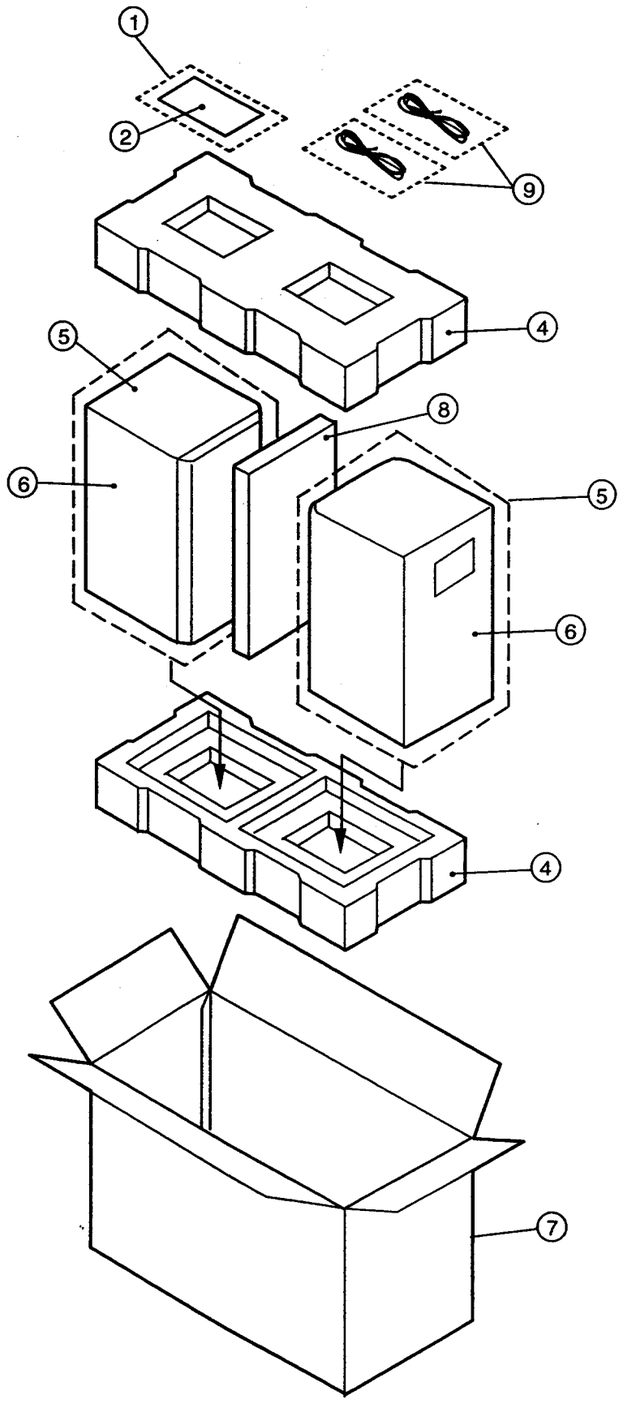
Parts marked with this symbol ⚠ ▬ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.



time for supplyir], or in

Diagram for thos · parts.)

PACKING VIEW



PACKING & ACCESSORIES PARTS LIST

Ref. No.		Part No.	Part Name	Remarks	Q'ty
	1	505 0038 030	Poly bag (230x340)	for instructions	1
	2	511 2853 001	Operating instructions		1
	3	–	–		
◉	4	960 0015 205	Cushion Ass'y	090518701	1
	5	505 0015 108	Poly bag (535x685)	for set	2
	6	–	Speaker system unit(USC-F07)	–	1s
◉	7	960 0032 107	Carton case	090142201	1
◉	8	960 0015 506	Snow pad	090693601	1
	9	960 0015 302	Speaker cable	030403607	2
★	10	–	Scotch tape	for seal	1

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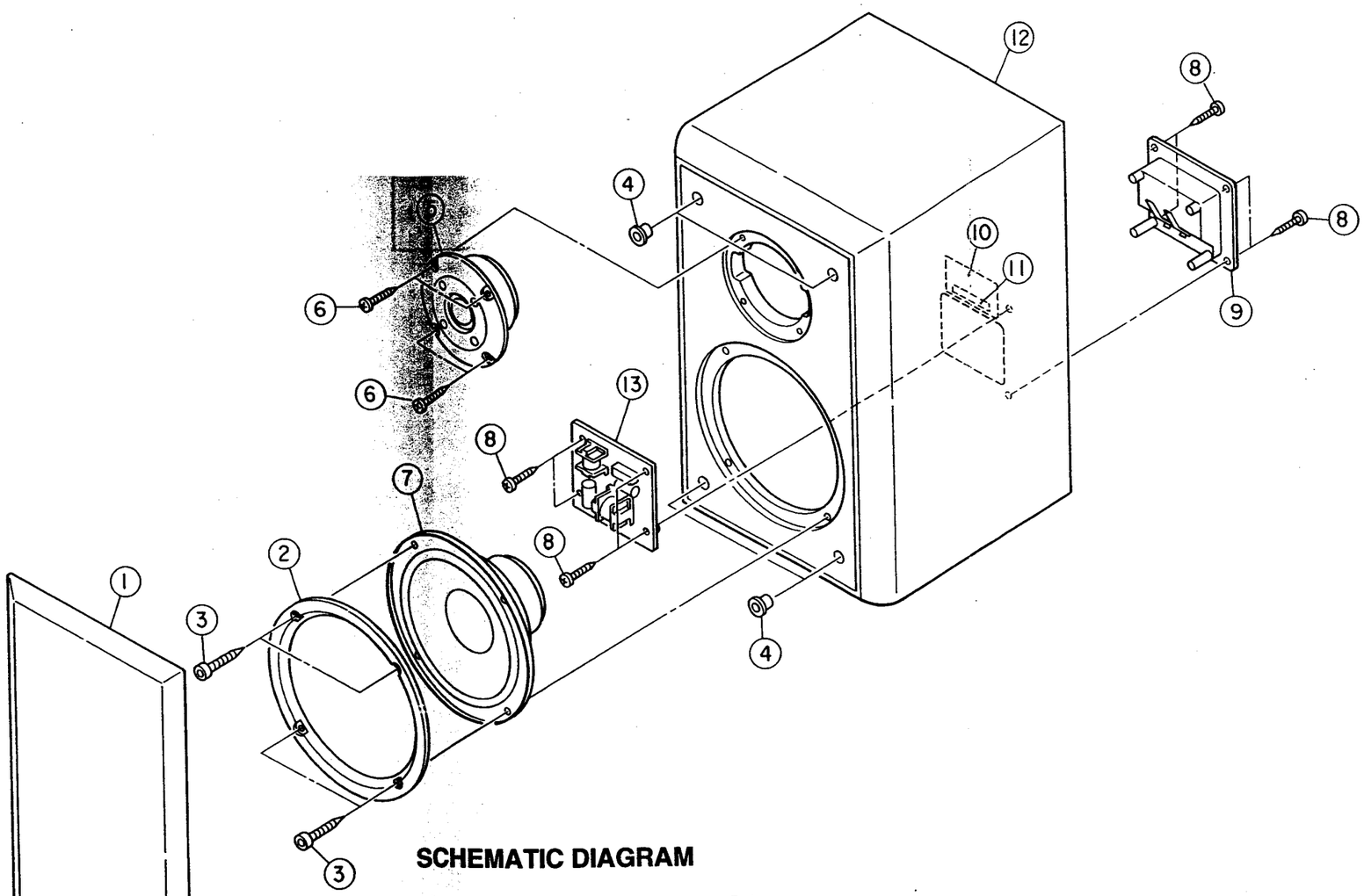
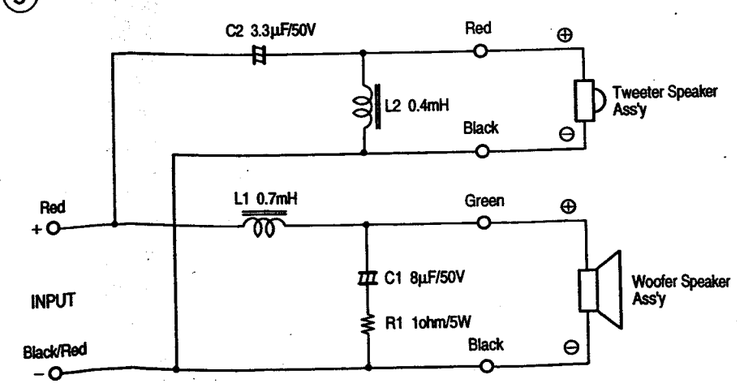
SPEAKER SECTION

EXPLODED VIEW



SCHEMATIC DIAGRAM



PARTS LIST OF EXPLODED VIEW

SPEAKER SYSTEM SECTION(USC-F07)

Ref. No.	Part No.	Part Name	Remarks	Q'ty
◉ 1	960 0016 107	Grille board Ass'y	080409701	2
◉ 2	960 0016 204	Decoration ring	070303601	2
3	960 0016 301	Screw 4x20	050800307	8
4	960 0016 408	Holder	070901801	8
◉ 5	960 0016 505	Speaker(Tweeter)	020306201	2
6	960 0016 314	Screw 3x20	050310007	8
◉ 7	960 0016 602	Speaker(Woofer)	023204901	2
8	960 0016 327	Screw 3x15	050300207	16
◉ 9	960 0016 709	Speaker terminal	071001301	2
10	960 0016 806	Rating sheet	110317501	2
11	960 0016 903	Serial No. sheet	111599917	1
◉ 12	960 0016 000	Cabinet	S1110123224	2
◉ 13	960 0015 700	Network Ass'y	030620801	2

NOTE FOR PARTS LIST

- Part indicated with the mark " ◉ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:
Parts marked with this symbol ⚠ ▓▓ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

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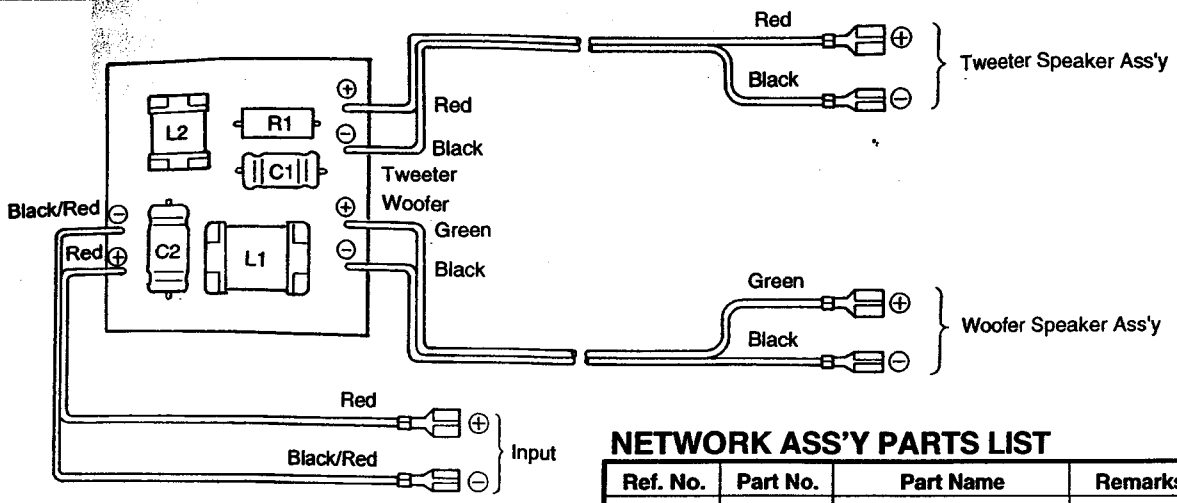
NETWORK



NETWORK ASS'Y PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	–	P.W.board		2
L1	–	Choke coil 0.7 mH		2
L2	–	Choke coil 0.4 mH		2
R1	–	Cement resistor 1 ohm/5 W		2
C1	–	Electrolytic cap. 8μF/50V	Bipolar	2
C2	–	Electrolytic cap. 3.3μF/50V	Bipolar	2
	–	2C Wire Ass'y (RED-BLK/RED)	Input	2
	–	2C Wire Ass'y (GRN-BLK)	Woofer	2
	–	2C Wire Ass'y (RED-BLK)	Tweeter	2

WIRE FORMING